

FLORA OF PANAMA

BY

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AND

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AND COLLABORATORS

PART III

Fascicle 3

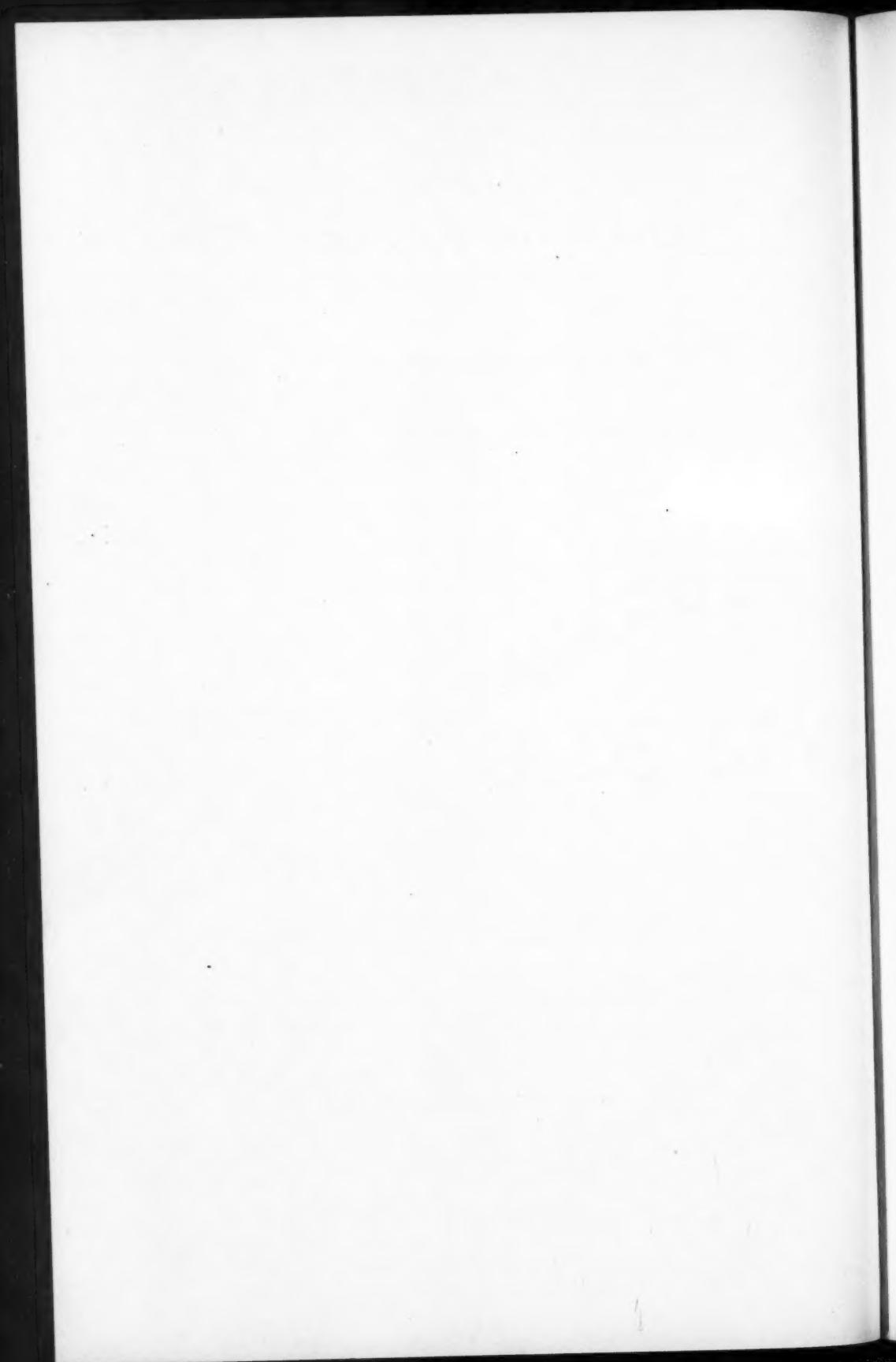
ORCHIDACEAE (Williams)
(second part)

**ANNALS
OF THE
MISSOURI BOTANICAL GARDEN**

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FLORA OF PANAMA

Part III. Fascicle 3

ORCHIDACEAE

BY LOUIS O. WILLIAMS

27. EPIDENDRUM L.

EPIDENDRUM L. Sp. Pl. ed. 2. 1347. 1763; Ames, Hubbard & Schweinfurth, Genus Epidendrum in U. S. & Middle America, pp. 1-233. 1936. Non L. Sp. Pl. ed 1. 952. 1753.—Conserved name, the generic type being *Epidendrum nocturnum* Jacq.

Amphiglottis Salisb. in Trans. Hort. Soc. Lond. 1:294. 1812, nomen nudum.

Auliza Salisb. loc. cit., nomen nudum.

Dinema Lindl. Collect. Bot., App. 1825, nomen subnudum.

Encyclia Hook. in Bot. Mag. 55: t. 2831. 1828.

Nanodes Lindl. in Bot. Reg. 18: t. 1541. 1832.

Physinga Lindl. in Bot. Reg. 24: Misc. p. 32. 1838.

Barkeria Knowl. & Westc. Fl. Cab. 2:7, t. 49. 1838.

Hormidium Lindl. ex Heynhold, Nomencl. Bot. Hort. Nachtr. 880. 1841.

Spathiger Small, Fl. Miami, p. 55. 1913.

Dimerandra Schltr. in Fedde Rep. Sp. Nov. Beih. 17:43. 1922.

Small to large, epiphytic or semi-epiphytic herbs or subshrubs with or without the stems swollen into pseudobulbs. Stems (secondary) swollen into pseudobulbs and the leaves borne at or near the apex of the pseudobulbs (§ ENCYCLIUM); or the stems slender and not swollen and with the leaves scattered along the stem (§ EUEPIDENDRUM); or slender or fusiform stems with the leaves scattered along them but with the base of the stems swollen (§ BARKERIA). Leaves variable in shape and size, usually coriaceous but occasionally fleshy. Inflorescence commonly terminal but occasionally lateral or both terminal and lateral, rarely borne from lateral, leafless shoots which later develop into pseudobulbs or stems; from simple and often 1-flowered to compound and many-flowered. Flowers from small to relatively large. Sepals equal or subequal, spreading, reflexed or subconnivent. Petals similar to the sepals but usually smaller and narrower or even filiform, occasionally broader. Lip unguiculate; the claw free, partially free, or adnate to the column; lamina simple or 3-lobed, the lobes often lobulate; the disc ecallous or usually bicallous and with or without lamellae or additional calluses. Column stout or slender, alate or exalate, clinandrium variously developed. Anther terminal, operculate, incumbent, 2-celled and with each cell more or less divided by a septum; pollinia 4, uniseriate, laterally compressed, with appendages, rarely without, waxy. Capsule various, winged or wingless.

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(315)

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Epidendrum is the largest genus of neotropical orchids. It contains about one thousand species. Certain species are exceedingly abundant in their range and in places might almost be called weeds.

The most recent study of this vast genus is Ames, Hubbard, and Schweinfurth's admirable monograph, cited above. We are much indebted to the authors of the fine key in that work, which has been followed as closely as possible in the following key to the Panamanian species. We are particularly indebted to Mr. Charles Schweinfurth for suggestions and criticism during its preparation, and to Prof. Oakes Ames for his generous permission to use many of the illustrations.

- a. Stems with true pseudobulbs surrounded by scarious non-leaf-bearing sheaths or occasionally leaf-bearing sheaths; leaves 1 or more borne at or near the summit of the pseudobulbs; lip free from the column or variously adnate to it..... Sect. I. *ENCYCLIUM* (p. 322)
- aa. Stems lacking true pseudobulbs although sometimes thickened; leaves distributed along the stem or at least leaf-sheaths surrounding the thickened bases of the stem.
 - b. Lip free from the column or adnate only at the base; the column usually winged; the stems swollen at the base or fusiform-cylindric..... Sect. II. *BARKERIA* (p. 338)
 - bb. Lip usually adnate to the entire length of the column (occasionally less); the column not winged laterally; stem never swollen..... Sect. III. *EUEPIDENDRUM* (p. 338)

Sect. I. *ENCYCLIUM*

- a. Lip entire or at most obscurely lobulate.
 - b. Pseudobulbs 1-leaved.
 - c. Lip ligulate or pandurate, slightly broader toward the apex.
 - d. Ovary muricate; sepals more than 10 mm. long..... 3. *E. BOOTHII*
 - dd. Ovary smooth; sepals less than 10 mm. long..... 13. *E. OTTONIS*
 - cc. Lip ovate to suborbicular-cordate.
 - d. Leaves narrowly linear..... 20. *E. STANGEANUM*
 - dd. Leaves ligulate to oblong-elliptic.
 - e. Lip hastate-rotund, acute; sepals oblong-lanceolate..... 18. *E. SPONDIADUM*
 - ee. Lip ovate to ovate-subrotund, acuminate; sepals linear-lanceolate..... 10. *E. FRAGRANS*
 - bb. Pseudobulbs 2- or more leaved.
 - c. Inflorescence abbreviated; peduncle short or wanting..... 1. *E. ABBREVIATUM*
 - cc. Inflorescence not abbreviated; peduncle more or less elongated.
 - d. Lamina of the lip noticeably longer than broad.
 - e. Apex of the lip rounded, obtuse, truncate or retuse [Species reported in cultivation]..... 80. *E. LIVIDUM*
 - ee. Apex of the lip acute or acuminate..... 4. *E. BRASSAVOLAE*
 - dd. Lamina of the lip as broad as long or broader than long.
 - e. Bracts of the inflorescence conduplicate and clasping the pedicel, conspicuous; rachis flexuose; pseudobulb stipitate..... 22. *E. VOLUTUM*
 - ee. Bracts of the inflorescence concave to flat; rachis straight or inconspicuously flexuose.
 - f. Callus of the lip a simple or bilobed cushion.
 - g. Disc of the lip occupied by a central bilobed cushion-like callus; sepals and petals usually maculate..... 9. *E. CRASSILABIUM*
 - gg. Disc of the lip with a simple, basal, velutinous cushion-like callus; sepals and petals not maculate..... 11. *E. IONOPHLEBIUM*
 - ff. Callus of the lip consisting of 2 or 3 basal keels or swellings..... 7. *E. COCHLEATUM*
 - aa. Lip 3-lobed or 3-lobulate.
 - b. Column with a distinct lateral auricle on each side about opposite the stigma.
 - c. Column more or less sharply recurved in the middle; veins of the mid-lobe of the lip smooth or nearly so..... 12. *E. ONCIDIODES* var. *RAMONENSE*

- cc. Column straight or nearly so; veins on the mid-lobe of lip often verruculose.
 - d. Lateral lobes of the lip triangular-lanceolate to oblong.....12a. *E. ONCIDIODES* var. *GRAVIDUM*
 - dd. Lateral lobes of the lip spatulate or oblong-spatulate.....12b. *E. ONCIDIODES* var. *MOOREANUM*
- bb. Column lacking distinct lateral auricles on either side of the stigma.
 - c. Mid-lobe of lip proportionally narrower at base, linear-elongate or linear-filiform.
 - d. Lateral lobes of lip fimbriate-ciliate.....6. *E. CILIARE*
 - dd. Lateral lobes of lip entire to somewhat dentate.....14. *E. PARKINSONIANUM*
 - cc. Mid-lobe of lip proportionally broader at base, not linear-elongate or linear-filiform.
 - d. Outer margins of mid-lobe of lip dentate to fimbriate.....19. *E. STAMFORDIANUM*
 - dd. Outer margins of mid-lobe of lip not dentate to fimbriate.
 - e. Mid-lobe of the lip smaller than either lateral lobe or about equal to either of them.
 - f. Floral bracts conspicuous, 14 mm. long or more.
 - g. Lip 3-lobate; mid-lobe about as broad as long.....22. *E. VOLUTUM*
 - gg. Lip deeply 3-partite; mid-lobe oblanceolate, longer than broad.....6a. *E. CILIARE* var. *OERSTEDII*
 - ff. Floral bracts not very conspicuous, 10 mm. or less long.
 - g. Mid-lobe of the lip triangular.....16. *E. PYGMAEUM*
 - gg. Mid-lobe of the lip not triangular.
 - h. Petals less than one-half as broad as the lateral sepals; inflorescence commonly basal.....17. *E. ROUSSEAUAE*
 - hh. Petals at most only slightly narrower than the sepals; inflorescence terminal.....9. *E. CRASSILABIUM*
 - e. Mid-lobe of the lip considerably larger than each lateral lobe.
 - f. Pseudobulbs 1-leaved.
 - g. Base of the lip gradually narrowed below the lateral lobes; floral bracts large, chartaceous.....5. *E. CAMPYLOSTALIX*
 - gg. Base of the lip abruptly contracted below the lateral lobes; floral bracts small.....12a. *E. ONCIDIODES* var. *GRAVIDUM*
 - ff. Pseudobulbs 2- or more leaved.
 - g. Pseudobulb contracted into a caulescent neck, 4-10 cm. long, separating the leaves from the swollen portion.....21. *E. VARICOSUM*
 - gg. Pseudobulb not contracted into a caulescent neck, leaves almost sessile on the swollen portion.
 - h. Mid-lobe of lip trulliform, acuminate.....15. *E. PRISMATOCARPUM*
 - hh. Mid-lobe of lip not trulliform nor acuminate.
 - i. Middle clinandrial tooth at summit of column broad, erect, fleshy and quadrate or orbicular-quadratae, distinct from lateral teeth.....8. *E. CONDYLOCHILUM*
 - ii. Middle clinandrial tooth at summit of column small, deltoid, incurved, obtuse or acute, separated from lateral teeth by a shallow sinus.
 - j. Area of mid-lobe of lip about 4-10 times that of either lateral lobe, usually retuse or bilobed.
 - k. Margin of mid-lobe of lip entire to erose-crenulate.....2. *E. ATROPURPUREUM*
 - kk. Margin of mid-lobe of lip dentate-lacerate.....2a. *E. ATROPURPUREUM* var. *LACINIATUM*
 - jj. Area of mid-lobe of lip about 3 times that of either lateral lobe, or less.
 - k. Column somewhat sharply recurved in the middle; veins of mid-lobe usually smooth.....12a. *E. ONCIDIODES* var. *RAMONENSE*
 - kk. Column nearly straight; veins of mid-lobe of lip often verruculose.
 - l. Lateral lobes of lip spatulate to oblong.....12b. *E. ONCIDIODES* var. *MOOREANUM*
 - ll. Lateral lobes of lip deltoid-lanceolate to oblong.....12a. *E. ONCIDIODES* var. *GRAVIDUM*

| | Sect. II. BARKERIA | 23. E. STENOPETALUM |
|---|-------------------------|---------------------|
| One species in Panama..... | | |
| | Sect. III. EUEPIDENDRUM | |
| a. Leaves equitant. | | |
| b. Flowers long-pedunculate and terminal..... | 43. E. EQUITANTIFOLIUM | |
| bb. Flowers sessile or nearly so and axillary..... | 50. E. LOCKHARTIOIDES | |
| aa. Leaves not equitant. | | |
| b. Lip distinctly 3-lobed or 3-lobulate. | | |
| c. Leaves terete, or subterete and sulcate, or flat and ligulate-linear. | | |
| d. Mid-lobe of lip semicircular-triangular, apiculate..... | 65. E. PUDICUM | |
| dd. Mid-lobe of lip elliptic to narrowly oblong, provided with a prominent lamellate callus..... | 75. E. TERETIFOLIUM | |
| cc. Leaves flat and usually more than 3 mm. broad. | | |
| d. Column with a distinct dorsal horn at the apex..... | 51. E. MICRODENDRON | |
| dd. Column without a distinct dorsal horn at the apex. | | |
| e. Mid-lobe of lip narrowly triangular to linear, several times longer than broad. | | |
| f. Lateral lobes of the lip laciniate-fimbriate..... | 35. E. CRINIFERUM | |
| ff. Lateral lobes of the lip not laciniate-fimbriate. | | |
| g. Inflorescence subtended by one or more large spathes..... | 54. E. OBESUM | |
| gg. Inflorescence usually not subtended by spathes; if so then by small inconspicuous ones..... | 53. E. NOCTURNUM | |
| ee. Mid-lobe of the lip not narrowly triangular to linear. | | |
| f. Lip tubular-involute, usually fleshy, in outline triangular to ovate-triangular, longer than broad..... | 72. E. SCULPTUM | |
| ff. Lip not tubular-involute, usually flat. | | |
| g. Area of the mid-lobe of lip approximately twice that of either lateral lobe or even larger. | | |
| h. Outer surface of lateral sepals verrucose..... | 44. E. EXASPERATUM | |
| h. Outer surface of the lateral sepals smooth. | | |
| i. Apex of mid-lobe of lip rounded or protuberant acute. | | |
| j. Floral bracts large, cucullate, only slightly shorter than the flowers; inflorescence subcapitate with 1 flower appearing at a time..... | 41. E. ELLIPSOPHYLLUM | |
| jj. Floral bracts small (or if large then much shorter than the flowers), not cucullate; inflorescence not subcapitate and normally with several flowers at a time. | | |
| k. Lateral lobes of the lip dentate to lacerate; inflorescence usually long-pedunculate..... | 47. E. IMATOPHYLLUM | |
| kk. Lateral lobes of the lip not dentate nor lacerate; inflorescence not long-pedunculate. | | |
| l. Lip spatulate, base of the mid-lobe broad and not unguiculate..... | 79. E. WARSCEWICZII | |
| ll. Lip not spatulate, base of the mid-lobe with a narrowed or unguiculate base..... | 38. E. DENTILOBUM | |
| ii. Apex of the mid-lobe of the lip truncate, retuse or bilobed, sometimes apiculate. | | |
| j. Lateral lobes of lip digitate, lacerate or deeply dentate; sepals pink, not maculate..... | 27. E. CALIGARIUM | |
| jj. Lateral lobes of the lip entire to minutely crenulate or crenate-dentate or bilobulate. | | |
| k. Leaves obtuse and minutely bilobed at the apex, usually ovate to elliptic or elliptic-lanceolate. | | |
| l. Inflorescence paniculate; sepals and petals maculate..... | 71. E. SCHUMANNIANUM | |
| ll. Inflorescence racemose; sepals and petals not maculate..... | 42. E. ENDRESII | |
| kk. Leaves acute or acuminate, not bilobed at the apex, usually linear-lanceolate to lanceolate. | | |
| l. Lobules of the mid-lobe of lip several times larger than the dentiform lateral lobes; inflorescence usually subumbellate or subcorymbose..... | 29. E. CENTRADENIA | |

- ll. Lobules of the mid-lobe of the lip about equaling in size the oblong or falcate-lanceolate lateral lobes, or smaller; inflorescence usually racemose..... 30. *E. CENTROPETALUM*
- gg. Area of mid-lobe of lip about equal to that of either lateral lobe or less.
- h. Ovary with a saccate vesicle at the summit..... 58. *E. PHYSODES*
- hh. Ovary without a saccate vesicle at the summit.
- i. Column, when seen from the side, like an ox-bow.... 39. *E. DIFFORME*
 - ii. Column, when seen from the side, not like an ox-bow, at most somewhat arched.
- j. Inflorescence 1-flowered or subumbellate.
- k. Sepals narrowly lanceolate, long-acuminate; stems usually straight or nearly so; usually but 1 flower open at a time..... 40. *E. EBURNEUM*
 - kk. Sepals broadly lanceolate to oblanceolate or obovate-oblong; stems flexuous.
- l. Sepals more than 1 cm. broad; inflorescence, as far as known, 1-flowered..... 57. *E. PENDENS*
- ll. Sepals less than 0.8 cm. broad; inflorescence usually more than 1-flowered.
- m. Mid-lobe of lip, when present, twice or more broader than long, semi-elliptic to reniform..... 39. *E. DIFFORME*
- mm. Mid-lobe of lip usually little broader than long; if as broad, subquadrate to subquadrate-ovate.
- n. Apex of the mid-lobe truncate, retuse or somewhat bilobed, usually apiculate..... 39a. *E. DIFFORME* var. *FIRMUM*
- nn. Apex of the mid-lobe of the lip triangular, acute..... 39b. *E. DIFFORME* var. *SIMULACRUM*
- jj. Inflorescence racemose or paniculate.
- k. Mid-lobe of the lip not bilobed nor retuse.
 - l. Inflorescence a dense spike-like raceme which is more or less arcuate; leaves linear-lanceolate..... 62. *E. POWELLII*
- ll. Inflorescence not a dense spike-like raceme; leaves elliptic to lanceolate or oblanceolate.
- m. Summit of column with a denticulate, sometimes 4-lobed wing..... 40. *E. EBURNEUM*
- mm. Summit of the column wingless.
- n. Lip up to about 8.5 mm. broad; stems simple..... 25. *E. ANCEPS*
 - nn. Lip 12 mm. or more broad; stems branched..... 48. *E. INCOMPCTUM*
- kk. Mid-lobe of the lip bilobed or retuse.
- l. Margins of lateral lobes of lips digitate, lacerate, or dentate.
 - m. Peduncle elongated, with close scarious tubular sheaths and with the flowers in dense racemes or sometimes paniculate; stems usually rooting opposite the leaves.. 46. *E. IBAGUENSE*
 - mm. Peduncles not much elongated or if so the sheath spreading, foliaceous or imbricated; stems not bearing roots opposite the leaves.
 - n. Mid-lobe of the lip with two strongly explanate lobules..... 56. *E. PANICULATUM*
 - nn. Mid-lobe of the lip with the lobules more or less porrect, never strongly explanate.
 - o. Lateral sepals 7-16 mm. long..... 60. *E. POLYANTHUM*
 - oo. Lateral sepals 4-6.5 mm. long..... 60a. *E. POLYANTHUM* var. *MYODES*

- ll. Margins of lateral lobes of lip not digitate, lacerate, nor dentate, sometimes crenate, undulate, or asymmetrically bilobed.
- m. Spread between the tips of the divaricate lobules of the mid-lobe of the lip about twice or more greater than the length of the lobes..... 74. *E. SUBNUTANS*
- mm. Spread between the tips of the more or less porrect lobules of the mid-lobe of lip or breadth of the mid-lobe less than twice the length.
- n. Lip 2 cm. or more broad; raceme usually elongated and more than 6 cm. in diameter..... 32. *E. MOYOBAMBAE*
- nn. Lip 1.5 cm. or less broad.
- o. Pair of basal calluses of the lip absent; peduncle usually elongated..... 25. *E. ANCEPS*
- oo. Pair of basal calluses of the lip present.
- p. Peduncle conspicuously winged and ancipitous..... 24. *E. ALLENII*
- pp. Peduncle not winged and ancipitous.
- q. Lateral sepals 6.5-16 mm. long.... 60. *E. POLYANTHUM*
- qq. Lateral sepals 4-6.5 mm. long.... 60a. *E. POLYANTHUM* var. *MYODES*
- bb. Lip simple, obscurely lobate or bilobed.
- c. Lower portion of lateral margins of lip irregularly lacerate to coarsely dentate; lamina with a prominent central keel extending almost to the apex..... 47. *E. IMATOPHYLLUM*
- cc. Lower portion of lateral margins of lip neither lacerate nor coarsely dentate.
- d. Leaf-blade not articulated to the sheath, thus not deciduous.
- e. Plants elongated and creeping; lateral sepals without a keel on the outer surface..... 32. *E. CONFERTUM*
- ee. Plants not elongated and creeping; lateral sepals keeled on the outer surface.
- f. Lip cordate-ovate, acute; clinandrium entire or denticulate..... 33. *E. CONGESTUM*
- ff. Lip reniform-suborbicular, apiculate; clinandrium lacerate..... 70. *E. SCHLECHTERIANUM*
- dd. Leaf-blade articulated to the sheath, thus deciduous.
- e. Ovary with a more or less semiglobose vesicle at the summit just under the lip.
- f. Anterior portion of the lamina of lip broadly rounded.
- g. Leaves triangular-lanceolate or narrower, scattered along the stem; lip not strongly conduplicate..... 58. *E. PHYSODES*
- gg. Leaves elliptic to elliptic-oblong, congested on the upper part of the stem; lip strongly conduplicate..... 28. *E. CAROLII*
- ff. Anterior portion of the lamina of the lip acute or acuminate..... 73. *E. STROBILIFERUM*
- ee. Ovary without a semiglobose vesicle at the summit.
- f. Back of the column terminating in a distinct, more or less spreading horn..... 51. *E. MICRODENDRON*
- ff. Back of the column not terminating in a distinct spreading horn.
- g. Lip with a tridentate (not tricarinate) or V-shaped callus at or near the base of the lamina.
- h. Leaves usually sulcate, terete or subterete, if flattened then very narrowly linear-lanceolate, often grass-like and acuminate..... 49. *E. ISOMERUM*
- hh. Leaves flat or at most conduplicate, ligulate or linear-oblong to lorate, or lanceolate to nearly elliptic, obtuse, bilobate.
- i. Lamina of the lip suborbicular-cordate, commonly broader than long..... 59. *E. PLATYSTIGMA*

- ii. Lamina of the lip triangular to ovate-triangular, usually longer than broad.
 - j. Margins of the lip very fleshy and thickened..... 69. *E. SANCHOII*
 - jj. Margins of the lip not fleshy and thickened.
 - k. Stems slender, usually 4 mm. or less in diameter below the inflorescence; leaf-sheaths and bracts not maculate; inflorescence usually lax and narrow..... 66. *E. RAMOSUM*
 - kk. Stems thicker, usually 5-6 mm. in diameter just below the inflorescence; leaf-sheaths and bracts usually finely maculate; inflorescence typically rather congested and broad..... 66a. *E. RAMOSUM*
var. *ANGUSTIFOLIUM*
- gg. Lip never with a tridentate or V-shaped callus at or near the base of the lamina.
 - h. Lamina of the lip triangular with a truncate base; inflorescence 1-flowered..... 78. *E. TRIANGULABIUM*
 - hh. Lamina of the lip never triangular with a truncate base.
 - i. Entire length of column adnate to base of lateral sepals..... 61. *E. PORPAX*
 - ii. Entire length of column not adnate to the base of the lateral sepals.
 - j. Stems branched.
 - k. Lip callus-bearing.
 - l. Clinandrium lacerate-dentate; lateral sepals falcate and acuminate; plant dwarf..... 37. *E. DENTIFERUM*
 - ll. Clinandrium not lacerate-dentate; lateral sepals not falcate.
 - m. Floral bracts very conspicuous, large and broad..... 31. *E. COCLÉENSE*
 - mm. Floral bracts not conspicuous, small and usually narrow.
 - n. Disc of lip bearing more or less lobate or retuse calluses, usually situated well above the base..... 77. *E. TRACHYTHECE*
 - nn. Disc of the lip not bearing more or less lobate or retuse calluses.
 - o. Clinandrium with 4 subrectangular petaloid lobes, the central pair longest and narrowest..... 76. *E. TETRACEROS*
 - oo. Clinandrium lacking 4 lobes..... 26. *E. BISULCATUM*
 - kk. Lip ecallose (mid-nerve sometimes thickened).
 - l. Inflorescence 1-flowered..... 67. *E. REPENS*
 - ll. Inflorescence 2- or more flowered.
 - m. Leaves less than 1 cm. broad, linear to linear-oblong..... 69. *E. SANCHOII*
 - mm. Leaves more than 1 cm. broad, elliptic to elliptic-ovate..... 36. *E. CRYPTANTHUM*
 - jj. Stems unbranched.
 - k. Floral bracts conspicuous due to their size compared to the flower, or to their distinct spreading character.
 - l. Lamina of the lip broader than long, reniform, bilobed or retuse..... 34. *E. CORNIFOLIUM*
 - ll. Lamina of the lip longer than broad or at most very slightly broader than long.
 - m. Flowers clustered at the end of a long naked peduncle.
 - n. Peduncle conspicuously winged and anciptous..... 24. *E. ALLENII*
 - nn. Peduncle not conspicuously winged and anciptous..... 55. *E. PANAMENSE*
 - mm. Flowers not clustered at the end of a long naked peduncle.
 - n. Lamina of the lip cordate-orbicular, about as long as broad..... 68. *E. RIGIDUM*

- nn. Lamina of the lip oblong-ovate, longer than broad..... 68a. *E. RIGIDUM* var. *ANGUSTISEGMENTUM*
- kk. Floral bracts not conspicuous.
- l. Inflorescence 1-flowered or subumbellate.
 - m. Lateral sepals narrowly lanceolate, long-acuminate; leaf-sheaths not dilated toward their summits; usually 1 flower open at a time; lip white..... 40. *E. EBURNEUM*
 - mm. Lateral sepals broadly lanceolate or oblanceolate to elliptic-oblong or ovate-oblong; leaf-sheaths dilated toward their summits.
 - n. Leaves semiterete and sulcate, linear-oblong..... 65. *E. PUDICUM*
 - nn. Leaves flat or conduplicate, usually ligulate to elliptic.
 - o. Leaf-sheaths strongly cuneate (viewed laterally), large and flaring, the folded sheath 2 cm. broad at junction with leaf; leaves strongly conduplicate, 2 cm. broad when folded..... 45. *E. HUNTERIANUM*
 - oo. Leaf-sheaths not broadly flaring, the folded sheath less than 1 cm. broad at junction with the leaf; leaves more or less flat, usually not strongly conduplicate, when so, less than 1 cm. broad when folded.
 - p. Lamina of the lip distinctly broader than long, reniform to transversely oval..... 39. *E. DIFFORME*
 - pp. Lamina of the lip about as broad as long, suborbicular-cordate..... 39b. *E. DIFFORME* var. *SIMULACRUM*
- ll. Inflorescence racemose or paniculate, mostly 3- or more flowered.
- m. Lateral sepals 22 mm. or more long.
 - n. Lateral sepals narrowly lanceolate, long-acuminate; lip subentire, white..... 40. *E. EBURNEUM*
 - nn. Lateral sepals narrowly spatulate-oblanceolate, acute or obtuse; lip denticulate or crenate-dentate, orange-vermillion..... 64. *E. PSEUDEPIDENDRUM*
 - mm. Lateral sepals 16 mm. or less long.
 - n. Lip conduplicate; peduncle elongated; raceme elongated and narrow.
 - o. Apex of the lip broadly rounded and retuse-apiculate; lateral sepals with a dorsal keel toward the apex..... 28. *E. CAROLII*
 - oo. Apex of the lip short-acuminate; lateral sepals without a dorsal keel..... 63. *E. PROBIFLORUM*
 - nn. Lip not conduplicate, flat or at most somewhat convex..... 25. *E. ANCEPS*

Sect. I. ENCYCLIUM

1. *EPIDENDRUM ABBREVIATUM* Schltr. in Fedde Rep. Sp. Nov. 3:107. 1906.

Epidendrum prorepens Ames, Sched. Orch. 2:33. 1923.

Small, repent, epiphytic herbs up to 2.5 dm. tall. Pseudobulbs 3.5-10 cm. long and 0.3-1 cm. in diameter, fusiform, occasionally stipitate, normally bifoliate. Leaves 4-14 cm. long and 0.3-1.5 cm. broad, obtuse, ligulate, subcoriaceous. Inflorescence a short, 1- to 5-flowered raceme up to about 4 cm. long. Dorsal sepals 10-15 mm. long and 2.5-3.5 mm. broad, linear-oblanceolate, obtuse or acute,

often carinate dorsally along the midrib. Lateral sepals 10–15 mm. long and 3–4 mm. broad, linear-lanceolate, obtuse to acute. Lip unguiculate, the claw adnate to the column, free portion 7–10 mm. long and 5–8 mm. broad, ovate to oblong-ovate; disc with a conspicuous callus-thickening at the base.

Guatemala, Honduras, Costa Rica and Panama.

CHIRIQUI: Boquete District, alt. 1300 m., *Davidson* 666; "Chiriquí", alt. 1300 m., *Powell* 152, 3560. COCLÉ: vicinity of La Mesa, hills north of El Valle de Antón, alt. 1000 m., *Allen* 2354. VERAGUAS: Santa Fé, alt. 500 m., *Powell* s. n.

2. EPIDENDRUM ATROPURPUREUM Willd. Sp. Pl. 4:115. 1805; Ames, Hub. & Schweinf. Genus Epidendrum in U. S. & Mid. Am. 60. 1936.

Epidendrum europurpureum Lindl. Gen. & Sp. Orch. Pl. 99. 1831.

Epidendrum macrochilum Hook. in Bot. Mag. 63: t. 3534. 1836.

Epidendrum macrochilum Hook. var. *roseum* Batem. Orch. Mex. & Guat. t. 17. 1839.

Encyclia atropurpurea Schltr. Orchideen, p. 208, fig. 49. 1914.

Encyclia atropurpurea var. *leucantha* Schltr. in Fedde Rep. Sp. Nov. Beih. 17:45. 1922.

Encyclia atropurpurea var. *rhabdoglossa* Schltr. loc. cit.

Robust caespitose epiphytic herbs. Pseudobulbs 3–8 cm. long or more and 1.5–5 cm. in diameter, ovoid, 1- to 3-leaved, usually bifoliate. Leaves 8–35 cm. long and 1.5–3.5 cm. broad, elliptic-ligulate or ligulate, obtuse or acute, coriaceous. Inflorescence a simple few- to many-flowered raceme up to 6 dm. long. Dorsal sepal 2.5–3.5 cm. long and 0.4–1.2 cm. broad, oblanceolate, obtuse. Lateral sepals similar to the dorsal but usually arcuate. Petals 2.5–3 cm. long and 0.7–1 cm. broad, oblanceolate to obovate, unguiculate, obtuse or acutish. Lip 3–5 cm. long and 1.8–4 cm. broad, 3-lobed, free nearly to the base of the column; lateral lobes oblong, obtuse or acute, relatively small, enfolding the column; mid-lobe large, variable, oblong to obovate to suborbicular to flabellate, always more or less emarginate.

Mexico, Guatemala, Salvador, Nicaragua, Costa Rica, Panama, the West Indies and in South America.

1 PROVINCE NOT KNOWN: "Panama", Sinclair. CHIRIQUI: between El Boquete and Caldera, alt. 300–700 m., Pittier 3331. COCLÉ: Penonomé, alt. 15–300 m., Williams 440. PANAMÁ: Rio Tecúmen, north of Chepo road, Hunter and Allen 851; San Juan, "all parts of the Pacific side", foothills east of city, Powell 80, 148, 149, 3196, 3226.

The copy of the Plumier plate (ed. Burmann) depicting this, which I have seen, is really not satisfactory for absolute identification. Lindley (Gen. & Sp. Orch. Pl. 100. 1831) had seen a copy of Plumier's plate in Lambert's herbarium and characterizes that of Burmann as a "caricature."

2a. EPIDENDRUM ATROPURPUREUM Willd. var. LACINIATUM Ames, Hub. & Schweinf. in Bot. Mus. Leafl. Harv. Univ. 3:63. 1935.

Margins of the mid-lobe of the lip lacerate-dentate and the lateral lobes somewhat smaller than in the species (a malformation?).

Panama.

PANAMÁ: foothills east of Panamá City, alt. sea-level, Powell 287.

3. EPIDENDRUM BOOTHII (Lindl.) L. Wms. in Ann. Missouri Bot. Gard. 26:282. 1939.

Maxillaria Boothii Lindl. in Bot. Reg. 24: Misc. p. 52. 1838.

Dinema paleaceum Lindl. loc. cit. 26: Misc. p. 51. 1840.

Epidendrum auritum Lindl. loc. cit. 29: Misc. p. 4. 1843.

Epidendrum paleaceum Reichb. f. in Beitr. Orch. Centr.-Am. 80. 1866; Reichb. f. in Saunders Ref. Bot. 2: t. 87. 1869.

Nidema Boothii Schltr. in Fedde Rep. Sp. Nov. Beih. 17:43. 1922.

Repent or subcaespitose epiphytic herbs up to about 3 dm. tall. Rhizome creeping. Pseudobulbs up to about 5 cm. long, cylindric, fusiform or narrowly ovoid, stipitate, unifoliate. Leaves (when mature) 5-22 cm. long and 0.4-1.2 cm. broad, linear-ligulate, obtuse or acute, coriaceous. Inflorescence a 1- to few-flowered raceme; flowers small; bracts mostly 2-3 cm. long, lanceolate, cucullate, paleaceous, relatively large. Dorsal sepal 12-17 mm. long and 3-4 mm. broad, narrowly lanceolate to lanceolate, acute. Lateral sepals 11-15 mm. long and 2-3 mm. broad, linear-lanceolate to lanceolate, acute or acuminate, arcuate. Petals 7-12 mm. long and 2-4.5 mm. broad, lanceolate to elliptic-ovate, acute or acuminate. Lip 8-11 mm. long and 2-3.5 mm. broad, oblong-ob lanceolate, obtuse or acute, slightly constricted above the middle, fleshy, bicarinate toward the base; disc often verrucose toward the apex.

From Mexico to Panama, the West Indies and northern South America, mostly at low elevations.

BOCAS DEL TORO: Río Cricamola, alt. about 10-15 m., Woodson, Allen & Seibert 1892; Isla Colón, Wedel 123; vicinity of Chiriquí Lagoon, Wedel 1909.

A species of low altitudes, often taken to be a *Maxillaria*.

4. *EPIDENDRUM BRASSAVOLAE* Reichb. f. in Bot. Zeit. 10:729. 1852; Hook. f. in Bot. Mag. 93: t. 5664. 1867.

Repent or caespitose epiphytic herbs up to about 5 dm. tall. Pseudobulbs up to 22 cm. long, from cylindric to ovoid, 2-, rarely 3-foliate. Leaves 12-26 cm. long and 2-4.5 cm. broad, oblong-ligulate to narrowly ovate, obtuse, coriaceous. Inflorescence a simple few-flowered raceme, exceeding the leaves; sheath inconspicuous, up to 12 cm. long. Sepals 3.5-5 cm. long and 0.3-0.5 cm. broad, linear-lanceolate, acute or acuminate, spreading. Petals similar to the sepals but slightly narrower. Lip 3-4.5 cm. long and 0.7-1.5 cm. broad, cuneate to a narrow base and adnate to the column for nearly the length of the column, simple; lamina 2-3 cm. long and up to 1.5 cm. broad, lanceolate-ovate, acuminate; claw with 2 short lamellate calluses.

Mexico, Guatemala, Honduras, Costa Rica and Panama.

CHIRIQUI: "Chiriquí Vulcan", Warscewicz.

This, like many another of Warscewicz's collections, is said to have come from Chiriquí, but has not been collected there since.

5. *EPIDENDRUM CAMPYLOSTALIX* Reichb. f. in Bot. Zeit. 10:730. 1852; in Saunders Ref. Bot. 2: t. 86. 1869; Summerhayes in Bot. Mag. 154: t. 9243. 1928. *Encyclia campylostalix* Schltr. in Fedde Rep. Sp. Nov. Beih. 17:45. 1922.

Caespitose epiphytic herbs up to about 4.5 dm. tall. Pseudobulbs 2-12 cm. long and 2-4.5 cm. broad, apicitous, narrowly oblong to ovoid, unifoliate. Leaves 4-30 cm. long and 1.3-8 cm. broad, elliptic, acute, subcoriaceous. Inflorescence an erect, 1- to many-flowered raceme subtended by a paleaceous sheath 1-7.5 cm. long; floral bracts 0.8-4 cm. long, linear to linear-lanceolate, acute, cucullate, paleaceous. Sepals similar, 16-20 mm. long and 3-4.5 mm. broad, linear-lanceolate, acute, the laterals slightly arcuate. Petals 13-17 mm. long and 1.5-2.5 mm. broad, ensiform to narrowly linear-ob lanceolate, acute. Lip 12.5-18 mm. long and 6-9 mm. broad, unguiculate, only slightly adnate to the column at the base, 3-lobed; claw narrow, comprising about half the length of the lip; terminal portion of lip subquadrate in outline; lateral lobes from small and rounded to oblong, obtuse; mid-lobe rounded to obovate, disc with an inconspicuous callus thickening or low raised lamellae. Ovary conspicuously 3-winged.

Costa Rica and Panama.

CHIRIQUI: forests around El Boquete, alt. 1000-1300 m., Pittier 3047; "Chiriquí", alt. 1600 m., Powell 74.

This species is variable in size, and many specimens appear depauperate.

6. *EPIDENDRUM CILIARE* L. Syst. Nat., ed. 10:1246. 1759; Lindl. in Bot. Reg. 10: t. 784. 1824.

Auliza ciliaris Salisb. in Trans. Hort. Soc. Lond. 1:294. 1812.

Epidendrum cuspidatum Lodd. Bot. Cab. 1: t. 10. 1816; Lindl. in Bot. Reg. 10: t. 783. 1824.

Epidendrum viscidum Lindl. in Bot. Reg. 26: Misc. p. 81. 1840.

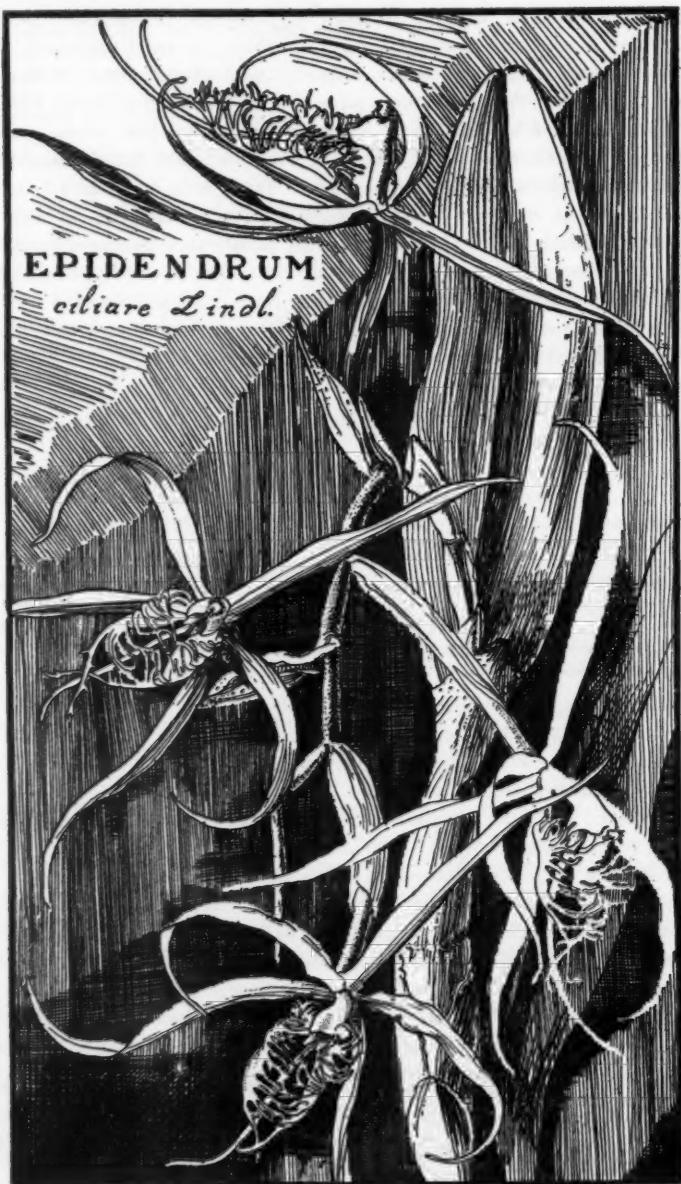
Phaedrosanthus ciliaris O. Ktze. in Post & Ktze. Lex. Gen. Phan. 429. 1904.

Repent or caespitose epiphytic herbs up to about 5 dm. tall. Pseudobulbs 8-22 cm. long and 0.6-2.2 cm. in diameter, cylindric, fusiform or tapering to the base, 1- to 2-(3)-leaved. Leaves 8-28 cm. long and 2-8 cm. broad, oblong-lanceolate, elliptic-oblong to oval, obtuse, coriaceous. Inflorescence a few- to several-flowered raceme; bracts 3.5-6.5 cm. long and 0.6-1.5 cm. broad, lanceolate to oblanceolate, cucullate, pergameneous. Sepals 35-85 mm. long and 1.5-6 mm. broad, linear to linear-lanceolate or linear-ob lanceolate, acute or acuminate. Petals 35-70 mm. long and 1.5-5 mm. broad, linear-lanceolate to linear-ob lanceolate, acute or acuminate. Lip 4-8 cm. long, 3-lobed, the base adnate to the column; lamina 3-6 mm. long, with 2 short lamellate calluses at the apex of the column; lateral lobes about 1.5-2.5 mm. long, each essentially reniform in outline or obliquely lanceolate-ovate, deeply dentate or usually lacerate; mid-lobe linear-filiform, up to 6 cm. long. Column with the clinandrium dentate or sublacerate.

Widely distributed and common from Mexico to Panama, through the West Indies and in South America.

CHIRIQUI: around El Boquete, alt. 1000-1300 m., Pittier 3048. "PROVINCE OF VERA-GUAS AND CHIRIQUI": alt. 910-1210 m., Powell 100, 3406.

A variable species but a distinctive one. Often in cultivation. A putative hybrid between *E. ciliare* and *E. Parkinsonianum* is recorded.

Fig. 120. *Epidendrum ciliare*

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6a. *EPIDENDRUM CILIARE* L. var. *Oerstedii* (Reichb. f.) L. Wms. comb. nov.*Epidendrum Oerstedii* Reichb. f. in Bot. Zeit. 10:937. 1852.*Epidendrum costaricense* Reichb. f. loc. cit.*Epidendrum Umlaufii* Zahlbr. in Wien. Illustr. Gartenzeit. 18:209, t. 2. 1893.

Similar to *E. ciliare* except the lateral lobes of the lip reniform, entire or at most crenulate, and the mid-lobe from filiform to broadly oblanceolate.

Costa Rica and Panama.

CHIRIQUI: Boquete, alt. 1150 m., Davidson 738; Palo Alto, alt. 1360 m., Powell 239, 3325, 3339.

Although this is obviously only a variation of *E. ciliare*, in which the lateral lobes of the lip are entire (or nearly so) and in which the mid-lobe is usually broader, its relationship seems not to have been suspected in recent years. Perhaps this is because of the very evident but superficial character of lacerate lateral lobes of the lip in *E. ciliare* and the entire (and thus less conspicuous) ones in the variety.

7. *EPIDENDRUM COCHLEATUM* L. Sp. Pl., ed. 2:1351. 1763; Ames, Hub. & Schweinf. Genus *Epidendrum* in U. S. & Mid. Am. 79. 1936.

Extremely variable epiphytic herbs up to about 5 dm. tall. Pseudobulbs 3–25 cm. long and 0.5–4 cm. broad, cylindric to fusiform to ovoid, round or flattened in cross-section, bifoliate or rarely otherwise. Leaves 10–35 cm. long and 2–5 cm. broad, elliptic to lanceolate to oblanceolate, acute. Inflorescence from shorter to longer than the leaves, a simple to branched raceme, subtended by a sheath which may be up to 15 cm. long. Flowers rather pretty, lip purple-marked to almost black, sepals and petals white to green, occasionally purplish. Sepals similar, 2.5–7 cm. long and 0.2–0.7 cm. broad, linear to linear-lanceolate, acute, usually strongly reflexed. Petals 1.5–5 cm. long and 0.15–0.4 cm. broad, narrowly linear, occasionally broadest near the apex, acute. Lip 1–3 cm. long and 1–2.5 cm. broad, short-unguiculate, claw adnate to the column for about half its length; lamina cordate-orbicular, usually broader than long, obtuse or apiculate, cochleate, with a more or less prominent callus thickening under the end of the column. Ovary 3-winged, prominently so in fruit.

Mexico to Venezuela and Colombia; the West Indies.

DARIÉN: Cana and vicinity, Williams 974.

A common and variable species, curiously known by only one collection in Panama.

8. *EPIDENDRUM CONDYLOCHILUM* Lehm. & Kränzlin in Engler's Bot. Jahrb. 26:459. 1899.

Epidendrum tessellatum Batem. in Bot. Reg. 24: Misc. p. 7. 1838, non Roxb.; Hook. in Bot. Mag. 65: t. 3638. 1838.

Epidendrum Deamii Schltr. in Beih. Bot. Centralbl. 36, Abt. 2:402. 1918; Ames, Hub. & Schweinf. Genus *Epidendrum* in U. S. & Mid. Am. 88. 1936.

Encyclia tessalata Schltr. loc. cit. 474, sphalm.

Repent or caespitose epiphytic herbs up to about 4 dm. tall. Pseudobulbs 2–15 cm. long and 0.3–1.5 cm. in diameter, cylindric to usually fusiform or narrowly ovoid, bi- to trifoliate. Leaves 6–25 cm. long and 0.5–2.5 cm. broad, linear to elliptic, acute or obtuse, usually erect. Inflorescence usually shorter than the leaves, simple or rarely branched, few- to many-flowered. Flowers small, dull-colored, variable. Dorsal sepal 8–12 mm. long and 1.5–3 mm. broad, linear to linear-lanceolate, acute. Lateral sepals 8–13 mm. long and 2–3 mm. broad, lanceolate to lanceolate-ovate, acute. Petals 8–10 mm. long and 1.5–4 mm. broad, linear-ob lanceolate to oblanceolate, obtuse. Lip 8–12 mm. long and 4–6 mm. broad, obovate, obovate-oblong to oval in general outline, distinctly 3-lobed to almost simple, free from the column, provided with a long low puberulent callus extending from the base to about the middle of the lip, and mammillate calluses from the middle toward the apex, these last often arranged in 3 rows; lateral lobes from very small to quite prominent and explanate, obtuse; mid-lobe with the margins undulate. Ovary winged.

Mexico, Guatemala, Honduras, Costa Rica, Panama, Venezuela and Colombia.

CHIRIQUI: "Chiriquí", alt. 1050–1450 m., Powell 93, 95, 3345, 3350, 3351, 3359.

This species has gone under the name of *Epidendrum Deamii* Schltr. for many years. It is perhaps not distinct from *E. lividum* Lindl., being separated by the presence of more or less distinct lateral lobes on the lip. The degree of lip loba tion is of dubious value, for several specimens show almost entire lip, including typical material of *E. condylocbilum*.

9. *EPIDENDRUM CRASSILABIUM* Poepp. & Endl. Nov. Gen. & Sp. Pl. 2:1, t. 102. 1838.

Epidendrum variegatum Hook. in Bot. Mag. 59: t. 3151. 1832.

Epidendrum baculibulbum Schltr. in Fedde Rep. Sp. Nov. Beih. 19:116. 1923.

Erect repent or caespitose epiphytes up to about 70 cm. tall. Pseudobulbs 15–35 cm. long and 0.5–1.5 cm. in diameter, cylindric (often thickened at the base) to fusiform, bearing 2–4 widely separated leaves. Leaves 14–40 cm. long and 2.5–4 cm. broad, elliptic to oblong-lanceolate, erect or spreading. Inflorescence a simple raceme either shorter or longer than the subtending leaf. Sepals similar, 10–13 mm. long and 0.3–0.6 mm. broad, oblong to ovate to obovate, obtuse. Petals 7–13 mm. long and 2.5–6 mm. broad, oblanceolate to oblong-ob lanceolate, obtuse, oblique. Lip 7–8 mm. long and 4–6 mm. broad, short-unguiculate, only slightly longer than the column; claw short, adnate to the column at the base; lamina orbicular to ovate, acute or obtuse, provided with a longitudinal callus at the base which is usually a single raised ridge and at the apex divided into two lamellae extending almost to the apex of the lip.

Costa Rica, Panama, the West Indies and to Brazil.

COCLÉ: El Valle de Antón, Allen 2205, Woodson & Schery 204.

10. *EPIDENDRUM FRAGRANS* Sw. Nov. Gen. & Sp. Prodr. 123. 1788.

Epidendrum fragrans Sw. var. *pachypus* Schltr. in Fedde Rep. Sp. Nov. Beih. 17:32. 1922.

Repent or caespitose epiphytic herbs up to about 4 dm. tall. Pseudobulbs 4–11 cm. long and 0.5–3 cm. in diameter, variable, cylindric, cylindric-fusiform to ovoid, occasionally apicitous, unifoliate. Leaves 8–30 cm. long and 1.5–5 cm. broad, ligulate to elliptic, obtuse, coriaceous. Inflorescence to 15 cm. long, shorter than the leaves, few- to several-flowered; sheaths up to 6 cm. long, chartaceous. Flowers greenish to yellowish, the lip usually lined with purple along the veins, sepals and petals rarely maculate. Sepals similar, 1.5–3.5 cm. long and 0.3–0.5 cm. broad, lanceolate or linear-lanceolate, acute or acuminate. Petals 2–3 cm. long and 0.5–1 cm. broad, broadly lanceolate to oblanceolate or obovate, acute or usually acuminate, unguiculate at the base. Lip 1.5–3 cm. long and 1–1.5 cm. broad, somewhat cochleate, base unguiculate and shortly adnate to the column; lamina ovate to ovate-subcordate, acuminate, provided with an inconspicuous callus at the base forming an inverted Y or with two small parallel calluses.

Mexico, Guatemala, Costa Rica, Panama, the West Indies and in South America to Brazil and Peru.

CANAL ZONE: Maxon 4913; San Juan and Frijoles, Powell 30, 43, 3355, 3370, 3371, 3378, 3379, 3428, 3448, 3474; Barro Colorado Island, Shattuck 551. COCLÉ: El Valle de Antón, Allen 1678.

11. EPIDENDRUM IONOPHLEBIUM Reichb. f. Beitr. Orch. Centr.-Am. 103. 1866.

Epidendrum pacbycarpum Schltr. in Fedde Rep. Sp. Nov. 3:109. 1906.

Epidendrum Hoffmannii Schltr. loc. cit. 16:444. 1920.

Repent or caespitose epiphytic herbs up to about 4 dm. tall. Pseudobulbs 3–9 cm. long and 1.5–3 cm. broad, ovoid, rarely fusiform, bifoliate or rarely trifoliate. Leaves 10–35 cm. long and 1.5–4 cm. broad, ligulate or elliptic, obtuse. Inflorescence up to 15 cm. long, shorter than the leaves, few- to several-flowered. Flowers greenish to white with the lip more or less prominently lined with purple. Sepals similar, 1.4–3.5 cm. long and 0.3–0.8 cm. broad, lanceolate-ligulate to lanceolate, acute, the laterals somewhat oblique. Petals 1.2–2.4 cm. long and 0.4–0.9 cm. broad, elliptic-oblanceolate to oblanceolate, acute or acuminate. Lip 1.2–2.2 cm. long and 0.8–1.8 cm. broad, unguiculate; claw short, adnate to the column; lamina ovate to orbicular, obtuse or apiculate, cochleate, provided with an oblong-pandurate to quadrate, obscurely puberulent callus at the base under the apex of the column. Ovary angled, when mature alate.

In all Central American countries from Mexico to Panama and in Venezuela.

CANAL ZONE: near Frijoles, Maxon 4724; Culebra, alt. 50–100 m., Pittier 3391; San Juan, Powell 187, 3182. CHIRIQUI: Boquete District, alt. 1500 m., Davidson 796; "Chiriquí", Powell 151, 187, 310, 3226, 3246, 3565. VERAGUAS: San Francisco, alt. 300 m., Powell 384.

12. EPIDENDRUM ONCIDIODES Lindl. var. RAMONENSE (Reichb. f.) Ames, Hub. & Schweinf. in Bot. Mus. Leafl. Harv. Univ. 3:103. 1935.

Epidendrum ramonense Reichb. f. Beitr. Orch. Centr.-Am. 81. 1866.

Encyclia ramonensis Schltr. in Beih. Bot. Centralbl. 36, Abt. 2:473. 1918.

Encyclia Powellii Schltr. in Fedde Rep. Sp. Nov. Beih. 17:46. 1922.

Large caespitose epiphytic herbs up to about 1 m. tall. Rhizome short. Pseudo-bulbs up to about 10 cm. long, cylindric to usually ovoid, 2- to 4-foliate. Leaves 10-60 cm. long and 1-2.5 cm. broad, ligulate or ensiform, acute or obtuse. Inflorescence paniculate, exceeding the leaves, few- to many-flowered, simple or compound. Dorsal sepal 14-18 mm. long and 3.5-5 mm. broad, elliptic-lanceolate to oblong-lanceolate, acute or acuminate. Lateral sepals similar to the dorsal except somewhat arcuate. Petals 14-17 mm. long and 3-5.5 mm. broad, narrowly lanceolate, acute or acuminate. Lip 12-15 mm. long; lateral lobes oblong, triangular-oblong, oblong-ovate or subquadrate-oblong, obtuse to truncate, arcuate; mid-lobe 7-10 mm. long and 6-8.5 mm. broad, ovate to suborbicular, obtuse to subacuminate; disc with 2 longitudinal fleshy ridges which form a fovea on the isthmus, extending onto the mid-lobe as thickened nerves. Column exariculate, with terminal angles or with dentiform auricles.

Honduras, Costa Rica and Panama.

CHIRIQUÍ: "Chiriquí", alt. 1360-1510 m., Powell 83. COCLÉ: El Valle, alt. 1060 m., Bouché 10.

For all practical purposes this and the two following varieties might well be referred to *E. oncidiooides* Lindl.

12a. *EPIDENDRUM ONCIDIOOIDES* Lindl. var. *GRAVIDUM* (Lindl.) Ames, Hub. & Schweinf. in Bot. Mus. Leafl. Harv. Univ. 3:104. 1935.

Epidendrum gravidum Lindl. in Jour. Hort. Soc. 4:114. 1849; Ames, Sched. Orch. 4:42, t. 2. 1923.

Encyclia gravida Schltr. in Beih. Bot. Centralbl. 36, Abt. 2:472. 1918.

Epidendrum albanense Ames, Sched. Orch. 1:13. 1922.

Encyclia Hunteriana Schltr. in Fedde Rep. Sp. Nov. Beih. 17:46. 1922.

Epidendrum amandum Ames, Sched. Orch. 4:36. 1923.

Epidendrum peraltense Ames, loc. cit. 46.

Similar to the preceding variety into which it intergrades, usually somewhat smaller in all parts. Mid-lobe of lip triangular-lanceolate to oblong. Veins of the mid-lobe verruculose.

Mexico, Honduras, Nicaragua, Costa Rica and Panama.

CHIRIQUÍ: Alanje, Pittier s. n.; David, Powell 84, 3261, 3264, 3539, 3545. PANAMÁ: San Juan Range, Powell 271, 3479, 3485.

12b. *EPIDENDRUM ONCIDIOOIDES* Lindl. var. *MOOREANUM* (Rolfe) Ames, Hub. & Schweinf. in Bot. Mus. Leafl. Harv. Univ. 3:106. 1935.

Epidendrum Mooreanum Rolfe in Kew Bull. 1891:199. 1891.

Encyclia Tonduziana Schltr. in Fedde Rep. Sp. Nov. Beih. 19:132. 1923.

Encyclia Breneii Schltr., loc. cit. 221.

Much like the preceding variety. Lateral lobes of the lip spatulate or oblong-spatulate, veins verruculose.

Costa Rica and Panama.

CHIRIQUÍ: Volcán de Chiriquí, alt. 2120 m., Davidson 879; Lino Hill, alt. 1360 m., Powell 292.

Fig. 121. *Epidendrum oncidioides* var. *gravidum*

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13. *EPIDENDRUM OTTONIS* Reichb. f. in Hamb. Gartenzeit. 14:213. 1858.*Nidema ottonis* Britt. & Millsp. Bahama Fl. 94. 1920.*Nidema Boothii* (Lindl.) Schltr. var. *triandrum* Schltr. in Fedde Rep. Sp. Nov. Beih. 17:43. 1922.

Small, repent or caespitose epiphytic herbs up to about 25 cm. tall. Rhizome creeping. Pseudobulbs up to about 4 cm. long, fusiform, short-stipitate, unifoliate. Leaves 5-19 cm. long and 0.5-0.9 cm. broad, linear-ligulate, obtuse or acute, coriaceous. Inflorescence a short, few-flowered raceme; flowers small, white or yellowish; bracts mostly 1-2 cm. long, lanceolate, acuminate, paleaceous. Dorsal sepal 7-9 mm. long and 2.5-3 mm. broad, elliptic-lanceolate, acute. Lateral sepals 7-9 mm. long and 2-2.5 mm. broad, lanceolate, acuminate, more or less arcuate. Petals 6-7 mm. long and 1.5-2 mm. broad, elliptic, elliptic-lanceolate to oblanceolate, acute or acuminate, arcuate. Lip 6.5-7 mm. long and about 1.5 mm. broad, narrowly oblong, acute, subpandurate, fleshy, canaliculate, keeled toward the apex below. Column monandrous or triandrous, if triandrous then the lateral stamens usually imperfect.

Panama, the West Indies, Venezuela, Colombia and Peru.

PANAMÁ: vicinity of Bejuco, Allen 981; east of Panamá City, Powell 131, 3449; swamp east of Tecúmen, Standley 26611; between Las Sabanas and Matías Hernández, Standley 31888, 31945.

Resembles *Epidendrum Boothii* (Lindl.) L. Wms. very much.

14. *EPIDENDRUM PARKINSONIANUM* Hook. in Bot. Mag. 67: t. 3778. 1840.*Epidendrum aloifolium* Batem. Orch. Mex. & Guat. t. 25. 1840, non L.*Epidendrum falcatum* Lindl. var. *Zeledoniae* Schltr. in Fedde Rep. Sp. Nov. Beih. 19:37. 1923.

Repent epiphytic herbs up to about 6 dm. long. Stems creeping, branched, cylindric or somewhat swollen. Leaves 15-50 cm. long and 1-4.5 cm. broad, ligulate to lanceolate-ligulate, acute, very thick, more or less flaccid, occasionally pustulate, usually pendent. Inflorescence a very short, few-flowered raceme; bracts short, ovate; pedunculate ovaries up to about 16 cm. long. Sepals 5.5-9 cm. long and 0.6-1.2 cm. broad, linear-lanceolate to linear, acute or acuminate, spreading. Petals 5-8 cm. long, similar to the sepals. Lip 6-8.5 cm. long (from the base of the column) and 3-4 cm. broad, 3-lobed, the base adnate to the column; lateral lobes 2.5-4 cm. long, broadly lunate to oblong-lunate; mid-lobe 3-6 mm. long, linear.

Mexico, Guatemala, Honduras, Costa Rica and Panama.

CHIRIQUI: Pueblo del Volcán, alt. 1800-1960 m., Gaines; Upper Río Chiriquí Viejo, vicinity of Monte Lirio, alt. 1300-1900 m., Seibert 214, 217.

A curious species with large and handsome flowers. It is allied to *E. ciliare* and *E. pugioniforme* but is easily distinguished from them by the flaccid, differently shaped leaves.

15. *EPIDENDRUM PRISMATOCARPUM* Reichb. f. in Bot. Zeit. 10:729. 1852; Reichb. f. *Xenia Orch.* 2:83, t. 123. 1862; Hook. in Bot. Mag. 88: t. 5336. 1862.

Stout repent or caespitose epiphytic herbs up to about 5 dm. tall. Pseudobulbs up to about 15 cm. long and 5 cm. in diameter, narrowly ovoid, often attenuated above, bi-trifoliate, the leaves somewhat separated on the apex of the bulb. Leaves 12–33 cm. long and 2–6 cm. broad, variable, from ligulate and oblanceolate-oblong to narrowly ovate, obtuse, coriaceous. Inflorescence an erect, few- to many-flowered raceme. Dorsal sepals 22–44 mm. long and 3–5 mm. broad, narrowly lanceolate to narrowly oblanceolate, acute, arcuate. Petals 20–28 mm. long and 3–5 mm. broad, elliptic-linear to lanceolate, acute, arcuate. Lip 18–25 mm. long and 7–9 mm. broad, 3-lobed, free from the column nearly to the base, subsagittate, with a central callus from the base nearly to the apex; middle lobe large, trulliform, acuminate.

Costa Rica and Panama.

CHIRIQUI: "Province of Chiriquí", alt. 1200–1360 m., Powell 99, 101, 3375, 3388, 3391, 3402; "Chiriquí", Warscewicz; near El Volcán, White 203; Casita Alta to Cerro Copete, alt. 2300–3300 m., Woodson & Schery 375.

Allied to *E. brassavolae*. One of the commonest of the Epidendrums in cultivation in greenhouses. It is a good bloomer and grows well, the flowers occasionally being sold as cut flowers in the northern markets.

16. *EPIDENDRUM PYGMAEUM* Hook. in Bot. Mag. 60: t. 3233. 1833; Hook. Jour. Bot. 1:49, t. 118. 1834; Ames, Hub. & Schweinf. Genus Epidendrum in U. S. & Mid. Am. 160. 1936.

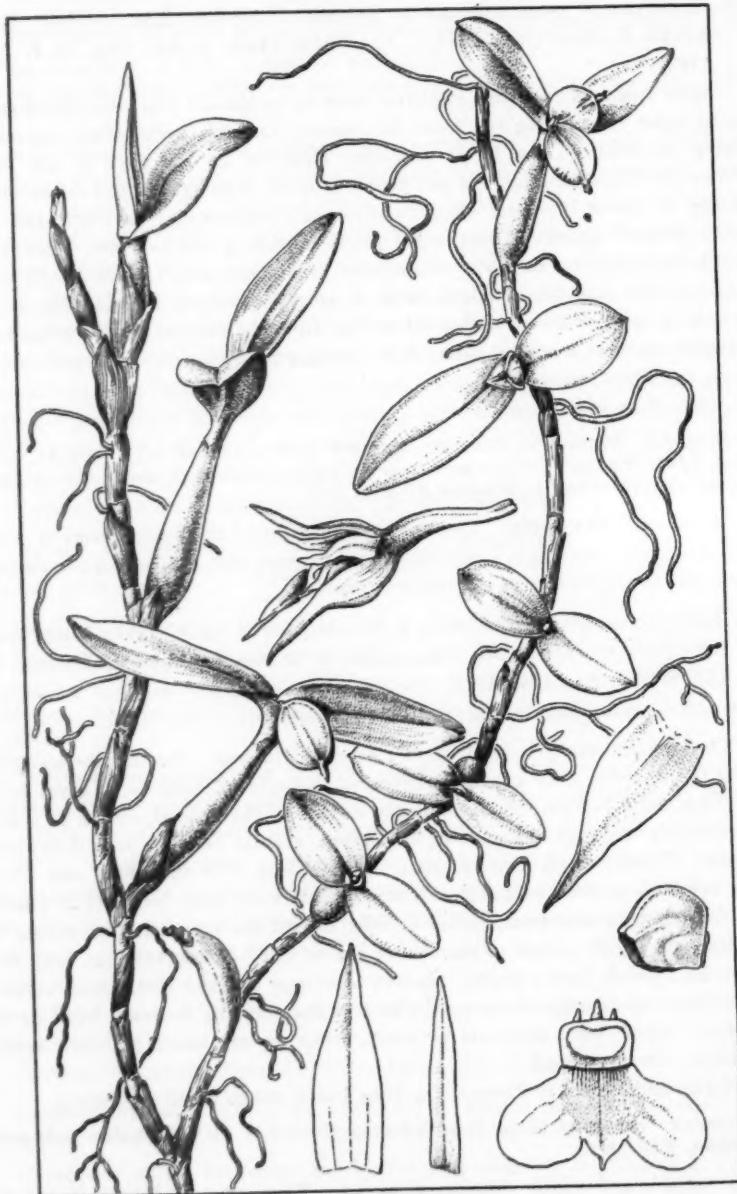
Hormidium pseudopygmaeum Finet in Bull. Herb. Boiss. 7:121, t. 3. 1899.

Small repent epiphytic herbs from a creeping rhizome. Pseudobulbs scattered along the rhizome, 2–10 cm. long, cylindric to fusiform, bifoliate. Leaves 2–15 cm. long and 0.7–2 cm. broad, narrowly elliptic to oblong-oval, obtuse to acute. Inflorescence sessile in the axils of the leaves, a short few- to several-flowered raceme. Flowers small, inconspicuous. Dorsal sepal 5–10 mm. long and 1.5–3 mm. broad, lanceolate, acuminate. Lateral sepals 6–12 mm. long and 2–4 mm. broad, lanceolate, acuminate, keeled dorsally toward the apex, shortly connate at the base and lightly adnate to the base of the column. Petals 4–8 mm. long and 0.5–1 mm. broad, linear, acute. Lip 3–8 mm. long and 3–7 mm. broad, clawed at the base and shortly adnate to the base of the column; lamina 3-lobed or 3-lobulate; lateral lobes explanate or erect, ovate to orbicular; mid-lobe small, apiculate. Ovary winged.

Florida and Mexico to Panama, the West Indies and to Brazil and Bolivia.

CHIRIQUI: vicinity of Monte Lirio, Seibert 239. COCLÉ: El Valle, Seibert 426; near El Volcán, White 205.

A variable and widely distributed species. There seem to be two forms of this,—one compact and small, the other rather loose and comparatively large. The second form is Finet's *Hormidium pseudopygmaeum*.

Fig. 122. *Epidendrum pygmaeum*

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17. *EPIDENDRUM ROUSSEAUAE* Schltr. in Beih. Bot. Centralbl. 36, Abt. 2:407. 1918; Ames, Hub. & Schweinf. Genus Epidendrum in U. S. & Mid. Am. 170. 1936.

Epiphytic herbs similar to *E. ramosum* Jacq. Leaves ligulate, about 7 cm. long and 1.2 cm. broad, obtuse. Inflorescence a lax several-flowered raceme up to about 10 cm. long. Flowers fleshy, greenish. Sepals about 1.2 cm. long, lanceolate-ligulate, acute, fleshy. Petals about 1.2 cm. long, linear or linear-ob lanceolate. Lip unguiculate; claw adnate to the column; lamina about 7 mm. long and as broad, trilobate, provided with 2 parallel calluses extending from the base up to the base of the mid-lobe, base deeply cordate; lateral lobes spreading, dolabriflorous, obtuse; terminal lobe about 4 mm. long and 3.5 mm. broad, extended into a suborbicular blade from a broadly ligulate claw, obtuse, apiculate.

Panama.

CANAL ZONE: Mrs. Rousseau, s. n.

The description is taken from the original publication. Specimens are missing from the Ames Herbarium but Ames, Hubbard & Schweinfurth have cited the following collections from Panama: Powell 112, 3393; Münch 27164; Shattuck 347.

Curiously enough, Schlechter contrasts this species with *Epidendrum ramosum* Jacq., which belongs to the section EUEPIDENDRUM, while Ames, Hubbard and Schweinfurth have placed it in the section ENCYCLIUM.

18. *EPIDENDRUM SPONDIADUM* Reichb. f. in Bot. Zeit. 10:731. 1852; Hook. f. in Bot. Mag. 119: t. 7273. 1893.

Epidendrum platycardium Schltr. in Fedde Rep. Sp. Nov. Beih. 17:36. 1922.

Repent or caespitose epiphytic herbs up to about 35 cm. tall. Pseudobulbs 3–12 cm. long and 0.6–1.3 cm. broad, cylindric to narrowly ovoid, unifoliate. Leaves 10–28 cm. long and 2.5–5 cm. broad, ensiform to elliptic, obtuse. Inflorescence shorter than the leaves, few-flowered; sheath about 2.5 cm. long. Flowers with sepals and petals greenish to white and the lip rose to purple. Sepals 13–20 mm. long and 3–6 mm. broad, lanceolate, acuminate or acute, the laterals oblique. Petals 12–17 mm. long and 3.5–6.5 mm. broad, lanceolate to lanceolate-ovate, acute or acuminate. Lip 12–15 mm. long and 10–12 mm. broad, short-unguiculate; claw adnate to the column; lamina suborbicular-reniform to cordate, apiculate, provided with a small subfoveate callus under the apex of the column which usually has 3 thickened nerves extending outward.

Costa Rica, Panama and possibly Jamaica.

CHIRIQUI: Palo Alto Hill, alt. 1500 m., Powell 141.

Very closely allied to *Epidendrum fragrans* Sw. and perhaps only a variation of that.

19. *EPIDENDRUM STAMFORDIANUM* Batem. *Orch. Mex. & Guat.* t. II. 1838;
Hook. in *Bot. Mag.* 80: t. 4759. 1854.

Epidendrum Cycnostalix Reichb. f. in *Bot. Zeit.* 10:731. 1852.

Caespitose epiphytic herbs up to about 50 cm. tall. Stems pseudobulbose, 8–27 cm. long and about 0.5–2 cm. in diameter, cylindric-fusiform to fusiform, bearing 1–4 leaves at or near the apex. Leaves 10–27 cm. long and 3–7 cm. broad, variable, ligulate, elliptic, oblong-lanceolate, or oblanceolate to oval, obtuse, coriaceous. Inflorescence up to about 60 cm. long, spreading or pendent, simple or paniculate, usually many-flowered, lateral from a short fertile shoot, or rarely terminal on the pseudobulb. Flowers rather pretty, fair-sized. Dorsal sepal 15–18 mm. long and 4–6 mm. broad, elliptic or lanceolate, acute or acuminate. Lateral sepals 14–18 mm. long and 4–6 mm. broad, lanceolate or oblong-lanceolate, strongly oblique, acute or acuminate. Petals 14–18 mm. long and 1.5–4.5 mm. broad, linear, elliptic, linear-oblong to lanceolate, acute. Lip unguiculate; claw adnate to the column; lamina 11–16 mm. long and 13–20 mm. broad, 3-lobed; lateral lobes large, spreading, oblong, oblique, obtuse, entire or crenulate; mid-lobe bilobulate, retuse, transversely oblong in outline, provided with a narrow, often cuneate claw at the base, entire or usually crenulate or serrulate; disc provided with a pair of parallel, short, lamellate calluses, or a single deeply sulcate callus at the base near the apex of the column, and with the median nerve thickened or raised into a low lamella.

Mexico to Panama, Venezuela and Colombia.

CHIRIQUI: "Chiriquí", Warscewicz.

No recent Panamanian collections seen. The species grows well in cultivation.

20. *EPIDENDRUM STANGEANUM* Reichb. f. in *Gard. Chron.* n. s. 15:462. 1881.
Epidendrum glandulosum Ames, *Sched. Orch.* 7:5, t. 20. 1924.

Small repent or caespitose epiphytic herbs from a slender creeping rhizome, up to 2 dm. tall. Pseudobulbs 1.5–5 cm. long and 0.1–0.5 cm. in diameter, cylindric to narrowly fusiform, covered with marcescent sheaths, becoming naked with age, unifoliate. Leaves 4–12 cm. long and 1–3 mm. broad (or in diameter), linear and flattened or appearing terete due to their inrolled margins. Inflorescence a few- to several-flowered raceme, shorter than the subtending leaf; flowers small and inconspicuous. Dorsal sepals 5–6 mm. long and 1.5–2 mm. broad, lanceolate, acute, sparsely glandular dorsally. Lateral sepals 6–7 mm. long and 2–3 mm. broad, oblique, lanceolate, acute or acuminate, sparsely glandular dorsally. Petals 4.5–5.5 mm. long and 0.5–0.7 mm. broad, linear, acute. Lip 5–6 mm. long and 3–3.5 mm. broad, unguiculate; claw short, adnate to the column; lamina deltoid to ovate-lanceolate, apiculate, slightly cochleate, without calluses.

Costa Rica and Panama.

CANAL ZONE: on trail from Colón, Powell 338; (record without data), Shattuck 454.

21. EPIDENDRUM VARICOSUM Batem. in Bot. Reg. 24: Misc. p. 30. 1838; Lindl.
Folia Orch. Epid. 23. 1853; Reichb. f. Xenia Orch. 1:163, t. 56. 1856.

Epidendrum chiriquense Reichb. f. in Bot. Zeit. 10:730. 1852, Xenia Orch. 1:164, t. 67.
1856.

Encyclia chiriquensis Schltr. in Beih. Bot. Centralbl. 36, Abt. 2:472. 1918.

Small to large, repent or caespitose, epiphytic herbs up to about 1 m. tall. Pseudobulbs up to 25 cm. long, usually ovoid at the base and prolonged into a long slender neck above, 3- to 4-leaved. Leaves 5-35 cm. long and 1.5-5 cm. broad, linear-lanceolate to elliptic, acute or acuminate. Inflorescence simple or branched, shorter or longer than the leaves. Dorsal sepal 8-18 mm. long and 3-5 mm. broad, oblong to oblong-lanceolate, acute or obtuse. Lateral sepals 8-16 mm. long and 3-5 mm. broad, oblong to oblong-ovate, oblique, obtuse or acute. Petals 8-14 mm. long and 2-5 mm. broad, oblanceolate to narrowly obovate, obtuse, usually oblique. Lip 9-15 mm. long and 6-13 mm. broad, cuneate, narrowed to the base and shortly connate with the base of the column, 3-lobed; lateral lobes arising near the middle of the lip, usually small and explanate. Mid-lobe relatively large, bifid, and the lobules more or less explanate and flabellate; disc with a large central callus and with mammillate or varicose processes or lamellae from the middle extending out to the lobules of the mid-lobe. Ovary angled or narrowly winged in fruit.

Mexico, Guatemala, Salvador, Honduras, Costa Rica and Panama.

CHIRQUI: "Chiriquí", Warscewicz.

Reichenbach first gave the origin of *Epidendrum chiriquense* as "Costa Rica und Chiriquí" and later as "Chiriquí: v. Warscewicz". The species has not been seen from Costa Rica or Panama since and the basis of *E. varicosum* in Panama is based on his record.

22. EPIDENDRUM VOLUTUM Lindl. & Paxt. in Paxton's Flow. Gard. 2:151, fig. 215. 1851-52.

Epidendrum Radlkoferianum Schltr. in Fedde Rep. Sp. Nov. 17:142. 1921.

Erect epiphytic herbs 18-25 cm. tall. Pseudobulbs when young 5-10 cm. long and 0.5-0.6 cm. in diameter, cylindric. Leaves 6-8 cm. long and 0.8-1 cm. broad, ligulate, acute, coriaceous. Inflorescence a lax raceme of 6-10 flowers, about 13 cm. long; peduncle 2-4 cm. long. Sepals about 1.8 cm. long and 0.3 cm. broad, narrowly oblong-ligulate, acuminate, the laterals oblique. Petals about as long as the sepals, linear, narrow and oblique, acuminate. Lip unguiculate; claw adnate to the column; lamina about 9 mm. long and 11 mm. broad, obscurely 3-lobed, subreniform-cordate, apiculate, apex triangular, apical part subcrenate and undulate; disc provided with 2 short, obtuse, parallel, lamellate calluses at the base and 3 approximate linear calluses extending up to about the middle.

Panama.

CHIRIQUI: "im Veragua- und Chiriqui-Distrikt", alt. 1000-1200 m., Powell 89; "Provinz Chiriqui", Wagner.

The description is taken from Schlechter's description of *E. Radlkoferianum*. The specimens indicated above are those cited by Schlechter.

SECT. II. BARKERIA

23. EPIDENDRUM STENOPETALUM Hook. in Bot. Mag. 62: t. 3410. 1835; Ames, Hub. & Schweinf. Genus Epidendrum in U. S. & Mid. Am. 179. 1936.

Dimerandra stenopetala Schltr. in Fedde Rep. Sp. Nov. Beih. 17:44. 1922.

Slender, caespitose, epiphytic herbs up to about 4 dm. tall. Stems terete, cylindric, cane-like, often somewhat flexuose, leafy. Leaves 3.5-14 cm. long and 0.4-1 cm. broad, linear or ligulate to linear-oblong or linear-lanceolate, obtuse, unequally bilobulate at the apex, scattered along the stem, one at each node. Inflorescence a short, few-flowered raceme. Dorsal sepal 10-13 mm. long and 3.5-4.5 mm. broad, lanceolate or elliptic-lanceolate, acute or acuminate. Lateral sepals 10-13 mm. long and 3.5-4.5 mm. broad, lanceolate to lanceolate-ovate, acute or acuminate, somewhat oblique. Petals 11-13 mm. long and 6-6.5 mm. broad, obovate to subrhombic, acute or acuminate. Lip 11-13 mm. long and 8-9.5 mm. broad, obovate to obovate-flabellate, truncate; disc obscurely lined. Column short, the clinandrium with 2 large lateral lobes.

Mexico, Guatemala, British Honduras, Honduras, Costa Rica, Panama, the West Indies and South America at low elevations.

BOCAS DEL TORO: Water Valley, Wedel 765. CANAL ZONE: drowned forest near Vigia and San Juan on Rio Pequeni, Dodge, Steyermark & Allen 16586; hills near Panamá City, Powell 17, 3451; Las Cruces trail, Standley 29101; between France Field and Corozal, Standley 30448. PANAMÁ: swamp east of Rio Tecúmen, Standley 26610.

This species is placed in section BARKERIA by Ames, Hubbard & Schweinfurth (loc. cit.), but it has little relationship to the other species of the section; it would perhaps be best placed in a section by itself.

III. Section EUEPIDENDRUM

24. EPIDENDRUM ALLENII L. Wms. in Ann. Missouri Bot. Gard. 28:418, t. 22, figs. 3-5. 1941.

Erect epiphytic herbs up to about 3 dm. tall. Stems ancipitous, covered with the bases of the 3 to 6 leaves. Leaves 4-12 cm. long, 1.2-3 cm. broad, elliptic to lanceolate, acute or short-acuminate. Peduncle about 10-15 cm. long, ancipitous, bialate, the wings prominent at the base but disappearing at about the middle of the peduncle. Inflorescence short, the rachis covered with the scarious, imbricated bracts; bracts up to about 1 cm. long. Dorsal sepal about 10 mm. long and 4 mm. broad, lanceolate, obtuse, 5- to 7-nerved, with a short dorsal apicule near the apex. Lateral sepals similar to the dorsal sepal except somewhat arcuate. Petals about 10 mm. long and 0.75 mm. broad, linear, 1-nerved. Lip unguiculate; the lamina about 10 mm. long and 12 mm. broad, subreniform, subentire or ob-

Fig. 123. *Epidendrum ellipsophyllum* and *E. Allenii*

Fig. 124. *Epidendrum anceps*

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surely 3-lobed, the terminal lobe inconspicuous and slightly retuse, with 2 approximate submammillar calluses at the base. Column of the section, about 7 mm. long.

Panama.

COCLÉ: hills north of El Valle de Antón, alt. 1000 m., Allen 2203, 2310.

25. EPIDENDRUM ANCEPS Jacq. Select. Stirp. Am. 224, t. 138. 1763; Ames, Hub. & Schweinf. Genus Epidendrum in U. S. & Mid. Am. 56. 1936.

Epidendrum musciferum Lindl. in Hook. Jour. Bot. 1:6. 1834.

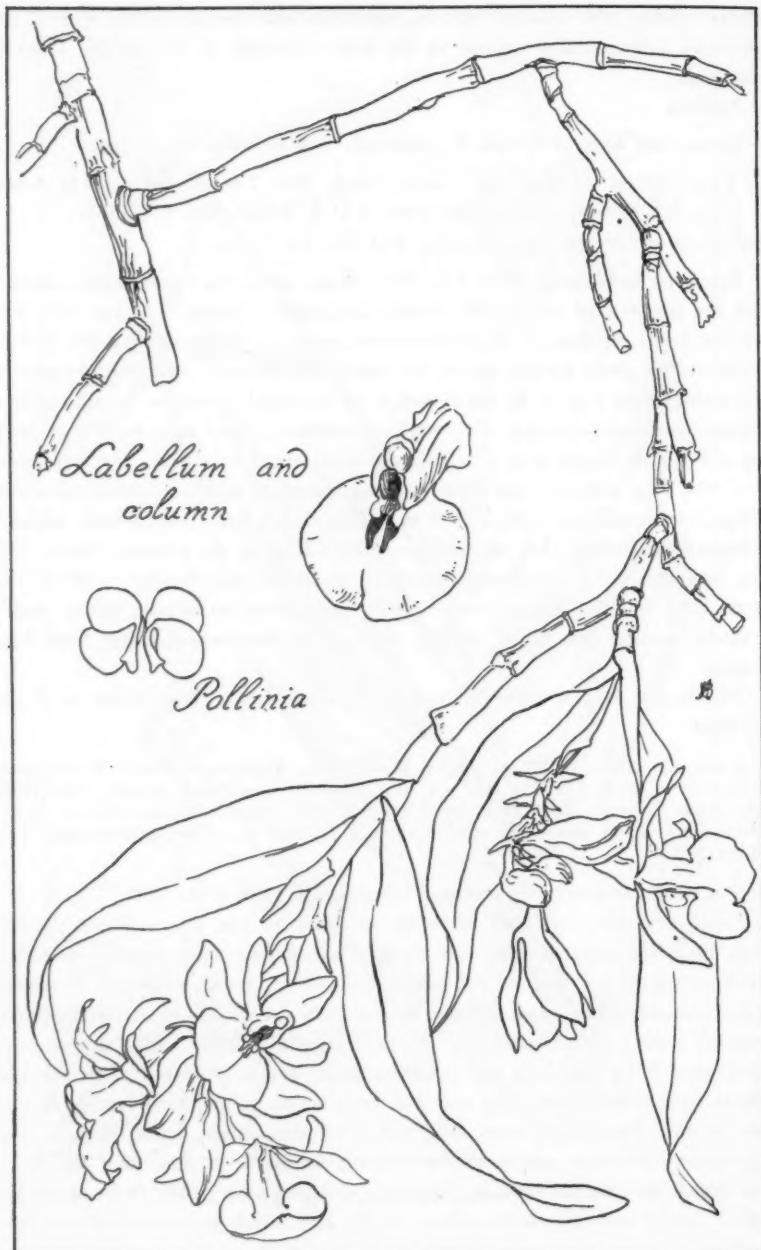
Epiphytic herbs up to about 1 m. tall. Stems slender to rather coarse, covered with the amplexicaul leaf-sheaths, usually ancipitous. Leaves 4-25 cm. long and 1-5 cm. broad, ligulate to elliptic-lanceolate, acute or obtuse, those at the middle of the stem or above usually largest, the lower ones reduced. Inflorescence usually long-pedunculate (up to 45 cm.), simple or branched, racemose or subcapitate; peduncle ancipitous, covered with scarious sheaths. Dorsal sepal 5-10 mm. long and 2-3.5 mm. broad, elliptic to elliptic-ovate, acute or obtuse. Lateral sepals 6-10 mm. long and 2-4 mm. broad, oblong-lanceolate to ovate, obtuse or acute, oblique, semi-cochleate. Petals 4-9 mm. long and 0.5-1.5 mm. broad, filiform to linear-ob lanceolate. Lip unguiculate; claw adnate to the column; lamina 3-6 mm. long and 4-7.5 mm. broad, reniform to cordate-suborbicular, 3-lobed; the lateral lobes rounded, fleshy; terminal lobe subquadrate to oblong, entire, retuse or doubly retuse; disc fleshy, usually with a low longitudinal callus from base to apex.

Florida and Mexico through Central America and the West Indies to Brazil and Peru.

BOCAS DEL TORO: Old Bank Island, Wedel 2081; Bastimentos Island, Wedel 2021. CANAL ZONE: Gatún Lake, Frijoles, San Juan, Fort Sherman, Powell 40, 41, 3349, 3366, 3367; Barro Colorado Island, Woodworth & Vestal 66A. CHIRIQUI: Lino Hill, alt. 1200-1500 m., Powell 299. PANAMÁ: Cerro Campana, alt. 1000 m., Allen 2452; Panamá City, Kieswetter s. n.

26. EPIDENDRUM BISULCATUM Ames, Sched. Orch. 5:24, t. 5. 1923.

Small, branched, epiphytic herbs up to about 50 cm. long. Stems slender, much branched, covered with the scarious leaf-sheaths when young, becoming naked with age. Leaves 4-10 cm. long and 0.6-2 cm. broad, elliptic to lanceolate to oblanceolate, acute. Inflorescence shorter than the leaves, 1- to few-flowered, borne on a short winged peduncle. Flowers greenish, the lip with a purple cast. Dorsal sepal 7-10 mm. long and 3-6 mm. broad, oval to oblong-ligulate, acutish. Lateral sepals 10-12 mm. long and 3-6 mm. broad, oblong to oblong-oval, oblique, acute. Petals 7-10 mm. long and 1.5-2 mm. broad, linear, obtuse. Lip unguiculate; the claw adnate to the column; lamina 7-10 mm. long and 9-13 mm. broad, suborbicular-cordate, crenulate, obscurely emarginate, fleshy, provided with 2 (or 3) submammillate calluses at the base which are prolonged into low

Fig. 125. *Epidendrum bisulcatum*

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fleshy keels and with a low keel passing between the mammillae.

Panama.

CHIRIQUI: Bajo Chorro, Boquete District, alt. 1800 m., *Davidson* 122, 322; Palo Alto Hill, alt. 1800 m., *Powell* 280, 281.

27. *EPIDENDRUM CALIGARIUM* Reichb. f. in *Gard. Chron.* 1869:1110. 1869;
Ames, *Sched. Orch.* 9:48, fig. 8. 1925.

Caespitose epiphytic herbs up to about 80 cm. long. Stems slender, strict, covered with loosely appressed sheaths, the sheaths densely maculated with minute, purple, papillose or tuberculate excrescences. Leaves 1.5–6 cm. long and 0.3–0.6 cm. broad, linear or linear-lanceolate, borne near the apex of the stem. Inflorescence exceeding the leaves, a densely flowered simple or branched raceme. Sepals

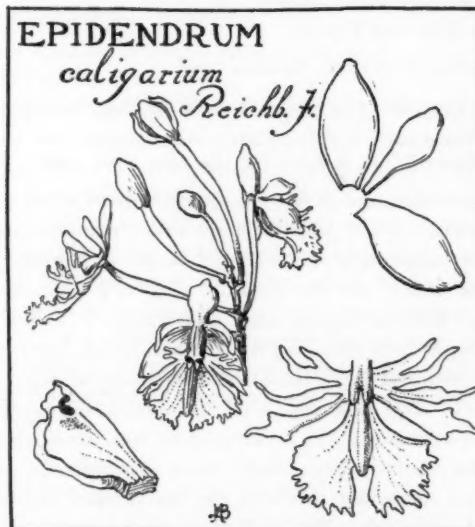


Fig. 126. *Epidendrum caligarium*

5–6 mm. long and 2.5–3 mm. broad, oval, obtuse or obscurely apiculate. Petals 5–6 mm. long and about 1.5 mm. broad, elliptic-ob lanceolate. Lip unguiculate; the claw adnate to the column; lamina 6–8 mm. long and 8–10 mm. broad, more or less orbicular in outline, 3-lobed, the lateral lobes deeply lacerate, often cut nearly to the middle of the lip, each lobe often 4-partite, mid-lobe deeply retuse, the lateral lobules denticulate or laciniate; disc provided with 2 small antorse, submammillate calluses at the base.

Known definitely only from Panama.

VERAGUAS: San Juan, alt. 360 m., *Powell* 380.

28. *EPIDENDRUM CAROLII* Schltr. in Fedde Rep. Sp. Nov. Beih. 19:35. 1923.

Erect, caespitose, epiphytic herbs up to about 40 cm. tall. Stems 3-12 cm. long, slender, covered with the scarious leaf-sheaths, becoming naked with age, bearing leaves toward the apex. Leaves 2.5-8 cm. long and 0.7-2 cm. broad, elliptic-lanceolate or oblong. Inflorescence up to 30 cm. long, long-pedunculate, a simple or branched raceme; peduncle ancipitous, covered with several equitant scarious bracts. Flowers small, usually purplish with a yellow lip. Dorsal sepal 5-6 mm. long and 1.5-2 mm. broad, lanceolate to oblong, acute or obtuse. Lateral sepals similar to the dorsal but oblique. Petals 3-5 mm. long and 1-1.8 mm. broad, linear to linear-oblong, slightly arcuate, obscurely denticulate. Lip unguiculate; claw adnate to the column; lamina 4-5 mm. long and as broad, ovate-cordate, crenulate, fleshy, the disc with a longitudinal callus well developed and joining the two erect lateral lobes of the lip.

Mexico, Costa Rica and Panama.

CHIRIQUI: Boquete, alt. 1150 m., Davidson 1058.

29. *EPIDENDRUM CENTRADENIA* Reichb. f. in Walp. Ann. 6: index p. 1163. 1865.

Oerstedella centradenia Reichb. f. in Bot. Zeit. 10:932. 1852.

Epidendrum tenuiflorum Schltr. in Fedde Rep. Sp. Nov. 3.49. 1906.

Caespitose or spreading and proliferous epiphytic herbs up to 0.5 m. or perhaps longer. Stems slender, covered with the amplexicaul, minutely papillose or tuberculate leaf-sheaths, becoming naked with age, simple or branched, bearing leaves mainly toward the apex of the new growths. Leaves 2-9 cm. long and 0.2-0.8 cm. broad, linear to linear-lanceolate, acute. Inflorescence 1- to few-flowered; flowers lilac-colored. Sepals 7-10 mm. long and 2-3 mm. broad, linear-lanceolate, acute. Petals 7-10 mm. long and 1.5-2 mm. broad, linear-ob lanceolate, obtuse, slightly oblique. Lip 10-18 mm. long and 9-17 mm. broad, unguiculate; the narrow claw adnate to the column; lamina 3-lobed, lateral lobes small, about 3 mm. long, explanate, mid-lobe relatively large, deeply retuse and with the two large divaricate lobules cuneate to the junction with the lateral lobes; disc provided with a small hood-shaped tridentate callus at the base of the lamina. Column with a large hood-shaped or calyptiform clinandrium.

Costa Rica and Panama.

CHIRIQUI: "Province of Chiriquí", alt. 1200 m., Powell 139.

30. *EPIDENDRUM CENTROPETALUM* Reichb. f. in Bot. Zeit. 10:732. 1852.

Oerstedella centropetalis Reichb. f. loc. cit. 932.

Epidendrum aberrans Schltr. in Fedde Rep. Sp. Nov. 15:206. 1918.

Epidendrum leprosum Schltr. in Fedde Rep. Sp. Nov. Beih. 19:38. 1923.

Caespitose or repent epiphytic herbs up to 65 cm. tall. Stems slender, covered with the leaf-sheaths or naked with age, simple or branched, bearing leaves mainly toward the apex; leaf-sheaths verrucose or tuberculate. Leaves 2.5-8 cm. long and 0.3-1.5 cm. broad, linear-lanceolate to lanceolate, acute or obtuse. Inflores-

cence a simple few- to several-flowered raceme exceeding the leaves; flowers small, rose to purple. Dorsal sepal 7–9 mm. long and 2–3 mm. broad, elliptic to oblanceolate, obtuse or acute. Lateral sepals 7–10 mm. long and 2–3.5 mm. broad, oblong or oblanceolate, acute, arcuate. Petals 6–9 mm. long and 1–2.3 mm. broad, linear-oblanceolate, obtuse. Lip unguiculate, strongly 3-lobed; claw at the base adnate to the column, free above, fleshy and provided with a raised sulcate and retuse callus reaching to about the lateral lobes; lamina strongly 3-lobed, the mid-lobe strongly bilobed, lateral lobes 2–4 mm. long, explanate, oblong, obtuse; terminal lobe clawed and the two lobules explanate to recurved, the lobules oblong, obtuse or acute. Column provided with a hood-shaped or calyptriform clinandrium.

Guatemala, Honduras, Costa Rica and Panama.

CHIRIQUI: Chiriquí Volcano, Warszewicz.

31. EPIDENDRUM COCLÉENSE Ames, Hub. & Schweinf. in Bot. Mus. Leafl. Harv. Univ. 4:6. 1936.

Scendent epiphytic herbs up to about 2.5 m. long. Stems simple or branched, covered with the amplexicaul leaf-sheaths or naked with age. Leaves 4–10 cm. long and 4–6 mm. broad, linear or ensiform, acute. Inflorescence short, 1- to 3-flowered, shorter than the subtending leaves; sheath up to 15 cm. long, subimbricated, scarious, cucullate, exceeding the pedicels of the flowers. Dorsal sepals about 8 mm. long and 2.5 mm. broad, linear-oblong, obtuse. Lateral sepals about 10 mm. long and 3.5 mm. broad, lanceolate, acute, shortly alate-keeled dorsally at the apex. Petals about 8 mm. long and 2 mm. broad, oblanceolate, acute. Lip unguiculate, fleshy; claw adnate to the column; lamina about 6 mm. long and 4 mm. broad, oblong-ovate, simple, obtuse, provided with a small tridentate callus under the apex of the column, the middle tooth of which is prolonged into a longitudinal carina.

Panama.

COCLÉ: El Valle de Antón, alt. 500 m., Hunter & Allen 389.

32. EPIDENDRUM CONFERTUM Ames & Schweinf. Sched. Orch. 10:61. 1930.

Epidendrum prostratum Schltr. in Beih. Bot. Centralbl. 36, Abt. 2:407. 1918, non Cogn.

Branched or simple, prostrate epiphytic herbs up to 50 cm. long. Stems slender, densely leaved, covered with the amplexicaul leaf-sheaths. Leaves 8–15 mm. long and 3–6 mm. broad, oblong-ligulate to ovate, acute to aristate. Inflorescence usually a single flower at the apex of the stem or branches. Sepals 8–9 mm. long and 2–2.5 mm. broad, lanceolate-ligulate, acute. Petals about 8 mm. long and 1 mm. broad, linear, obtuse or acute, broadest near the apex. Lip unguiculate; claw adnate to the column; lamina about 5 mm. long and as broad, orbicular-cordate, slightly cochleate.

Costa Rica and Panama.

CHIRIQUI: Bajo Chorro, Boquete District, alt. 1800 m., Davidson 246.

33. EPIDENDRUM CONGESTUM Rolfe in Kew Bull. 1913:29. 1913.

Epidendrum serruliferum Schltr. in Fedde Rep. Sp. Nov. Beih. 19:44. 1923.

Small, densely caespitose herbs up to 7 cm. tall. Stems short, covered with the broad equitant bases of the leaves. Inflorescence 1- to few-flowered, sessile in the axils of the terminal leaves. Leaves 8-30 mm. long and 4-8 mm. broad, linear-oblong to oblong-oval, obtuse, approximate, semi-equitant, spreading, fleshy. Dorsal sepal 7-9 mm. long and 3-4 mm. broad, lanceolate, acute to acuminate. Lateral sepals 8-10 mm. long and 2-3 mm. broad, lanceolate, cucullate, alate-keeled dorsally and the keel denticulate, oblique, connate at the base with the claw of the lip. Petals 7-8 mm. long and 2-2.5 mm. broad, lanceolate, acute, minutely denticulate. Lip 7-10 mm. long, long-unguiculate; claw adnate to the column but exceeding it slightly; lamina 4-5 mm. long and 3-4 mm. broad, lanceolate-cordate to cordate, acute or acuminate, fleshy, lobes more or less erect. Clinandrium not fimbriate.

Costa Rica and Panama.

COCLÉ: vicinity of El Valle, alt. 600-1000 m., Allen 1247.

34. EPIDENDRUM CORIIFOLIUM Lindl. in Jour. Hort. Soc. Lond. 6:218, fig. 1851; Summerhayes in Bot. Mag. 160: t. 9477. 1937.

Epidendrum magnibracteatum Ames, Sched. Orch. 1:16. 1922, non Kränzlin.*Epidendrum coriifolium* Lindl. var. *purpurascens* Schltr. in Fedde Rep. Sp. Nov. Beih. 17:31. 1922.*Epidendrum fuscopurpureum* Schltr. loc. cit. 32.*Epidendrum palmense* Ames, loc. cit. 2:33. 1923.*Epidendrum subviolascens* Schltr. loc. cit. 19:219. 1923.

Erect, caespitose or repent, epiphytic herbs up to about 40 cm. tall. Stems indurated, covered toward the base with sub-scarious sheaths and above by the amplexicaul leaf-sheaths, bearing 2-4 leaves above. Leaves 7-30 cm. long and 1-4.5 cm. broad, ligulate or ligulate-oblong, obtuse, apex bilobed, keeled dorsally along the mid-nerve. Inflorescence up to 30 cm. long, with up to 15 flowers, the peduncle enveloped in the imbricated floral-bracts; bracts 15-65 mm. long and 10-30 mm. broad when spread out, strongly cucullate, obtuse; flowers variable in size, greenish or the lip purplish. Dorsal sepal 15-25 mm. long and 3.5-6 mm. broad, lanceolate, acute. Lateral sepals 15-25 mm. long and 5-11 mm. broad, lanceolate to ovate-lanceolate, acute, oblique. Petals 14-20 mm. long and 1.5-2.5 mm. broad, linear to linear-ob lanceolate, acute. Lip unguiculate; the claw adnate to the column; lamina 12-25 mm. long and 14-28 mm. broad, cordate-reniform, usually retuse or bilobed at the apex, fleshy, provided with a longitudinal callus-thickening, entire or serrulate.

Mexico, Guatemala, Costa Rica, Panama, Venezuela, Ecuador and Peru.

CHIRIQUI: Bajo Chorro, Boquete District, alt. 1800 m., Davidson 245; province of Chiriquí, alt. 1200 m., Powell 19, 3394. COCLÉ: region north of El Valle de Antón, alt. 1000 m., Allen 2901.

A variable species that has been much described.

35. *EPIDENDRUM CRINIFERUM* Reichb. f. in Gard. Chron. 1291. 1871; Hook. f. in Bot. Mag. 100: t. 6094. 1874.

Erect, caespitose, epiphytic herbs up to 50 cm. tall. Stems slender, strict, simple, covered with the amplexicaul leaf-sheaths or naked below. Leaves 5–13 cm. long and 0.5–1.5 cm. broad, elliptic-linear to linear-lanceolate, acute, erect or spreading. Inflorescence a simple few-flowered raceme, peduncle covered with several large imbricated spathe-like bracts at the base. Sepals 10–25 mm. long and 2–3 mm. broad, linear-lanceolate to lanceolate, acute or acuminate. Petals 10–20 mm. long and about 1 mm. broad, filiform. Lip unguiculate; claw adnate to the column; lamina strongly 3-lobed, the lateral lobes semi-ovate with crenate or laciniate margins and the setae usually recurved, the mid-lobe 5–12 mm. long and linear or filiform, disc provided with 2 tubercular calluses at the apex of the column.

Costa Rica, Panama and Peru.

COCLÉ: north rim of El Valle de Antón, alt. 600–1000 m., Allen 1679.

36. *EPIDENDRUM CRYPTANTHUM* L. Wms. in Am. Orch. Soc. Bull. 11:249, t. 7. 1942.

Repent, branched, epiphytic herbs up to about 40 cm. long. Stems slender, covered with the scarious amplexicaul leaf-sheaths, becoming naked with age, arcuate, continuing the growth from about the middle of the previous year's growth, unilateral in origin, somewhat swollen toward the apex of each growth. Leaves 5.5–8 cm. long and 1.7–3 cm. broad, elliptic to elliptic-ovate, acute, coriaceous, 2–3 at the apex of each growth. Inflorescence about 3 cm. long, a short, congested subcapitate raceme; bracts conspicuous, ovate or ovate-oblong, entire or lacerate toward the apex; flowers small, hidden by the subtending bracts. Dorsal sepal about 10 mm. long and 3 mm. broad, elliptic-oblong, obtuse. Lateral sepals 10–11 mm. long and 3.5–4 mm. broad, elliptic-oblong or elliptic-oval, obtuse or acutish, arcuate. Petals about 10 mm. long and 3.5–4 mm. broad, oblanceolate-oblong, obtuse. Lip short-unguiculate; lamina about 10 mm. long and 8 mm. broad, obovate, cordate at the base, the apex apiculate, lateral margins involute; disc fleshy.

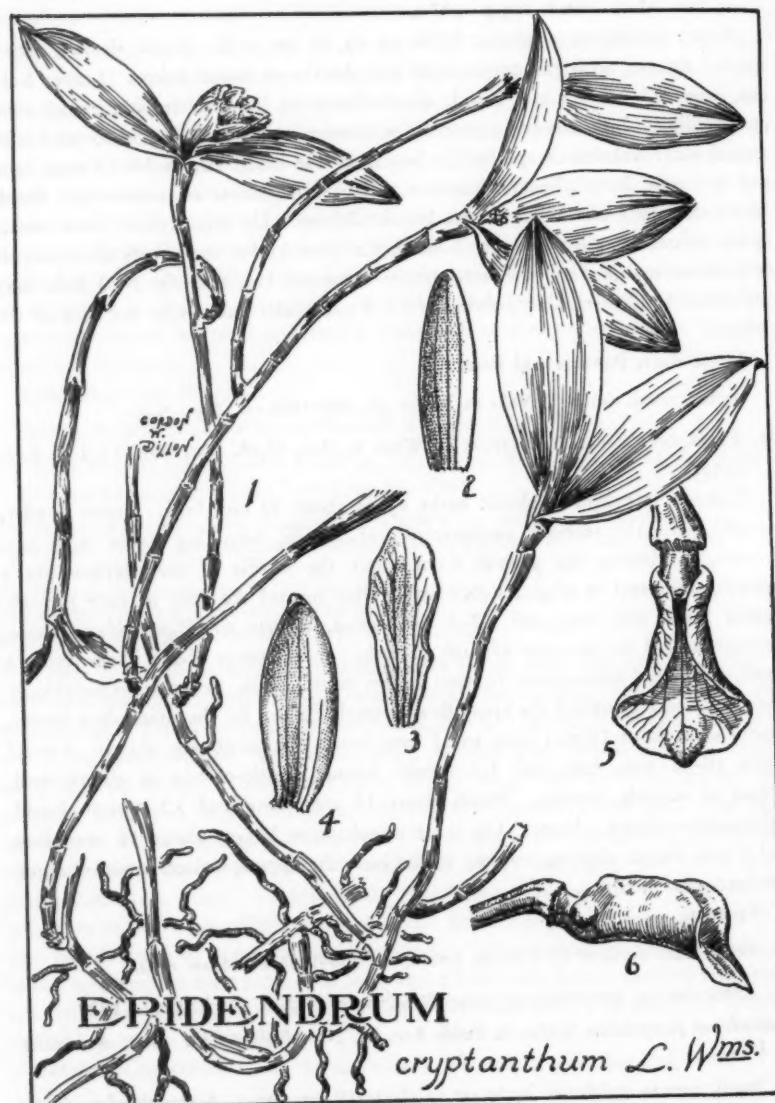
Panama.

COCLÉ: hills north of El Valle de Antón, alt. 800–1000 m., Allen 2262.

37. *EPIDENDRUM DENTIFERUM* Ames & Schweinf. Sched. Orch. 8:42. 1925.

Epidendrum platycybulum Schltr. in Fedde Rep. Sp. Nov. Beih. 19:42. 1923, non Schltr. 1921.

Small, repent, epiphytic herbs up to about 10 cm. long. Stems slender, simple or branched, covered with the scarious leaf-sheaths or becoming naked. Leaves 2–7 cm. long and 0.3–0.5 cm. broad, linear or ligulate. Inflorescence terminal, few-flowered; flowers relatively large for the plant. Dorsal sepal 8–15 mm. long

Fig. 127. *Epidendrum cryptanthum*

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and 2-2.5 mm. broad, lanceolate, acute. Lateral sepals 9-16 mm. long and 2.5-3.5 mm. broad, lanceolate, acuminate, arcuate. Petals 8-15 mm. long, filiform or subulate. Lip simple, unguiculate; claw adnate to the column; lamina 7-13 mm. long and 8-14 mm. broad, suborbicular or suborbicular-reniform, mucronate, provided with 2 small basal calluses.

Costa Rica and Panama.

DARIÉN: Cana Cuasi trail, Chepigana District, alt. 2400 m., Terry & Terry 1412.

38. EPIDENDRUM DENTILOBUM Ames, Hub. & Schweinf. in Bot. Mus. Leafl. Harv. Univ. 3:69. 1935.

Erect, caespitose, epiphytic herbs up to about 30 cm. tall. Stems slender, simple, covered with the scarious leaf-sheaths or naked below. Leaves 6-10 cm. long and 1.2-1.8 cm. broad, elliptic, acute. Inflorescence simple or branched, few-flowered; flowers inadequately known. Dorsal sepal about 12 mm. long and 5 mm. broad, concave, narrowly oval. Lateral sepals about 10 mm. long and 6 mm. broad, oblong-oval, oblique, acute. Petals about 11 mm. long and 5.5 mm. broad, spatulate-ob lanceolate, oblique, obtuse. Lip unguiculate; claw short, adnate to the column; lamina 3-lobed, about 7 mm. long and 8 mm. broad; lateral lobes small, dentiform, narrowly triangular-lanceolate, explanate, about 1.5-2 mm. long; terminal lobe largest, semicircular-flabellate, cuneate to the base; disc with 3 thickened, carinate nerves, the central one most prominent and with a mammilate callus at the base.

Panama.

CANAL ZONE: hills back of San Juan, alt. sea-level, Powell 342.

The available material of this species is inadequate.

39. EPIDENDRUM DIFFORME Jacq. Enum. Pl. Carib. 20. 1760; Select. Stirp. Am. 223, t. 136. 1763.

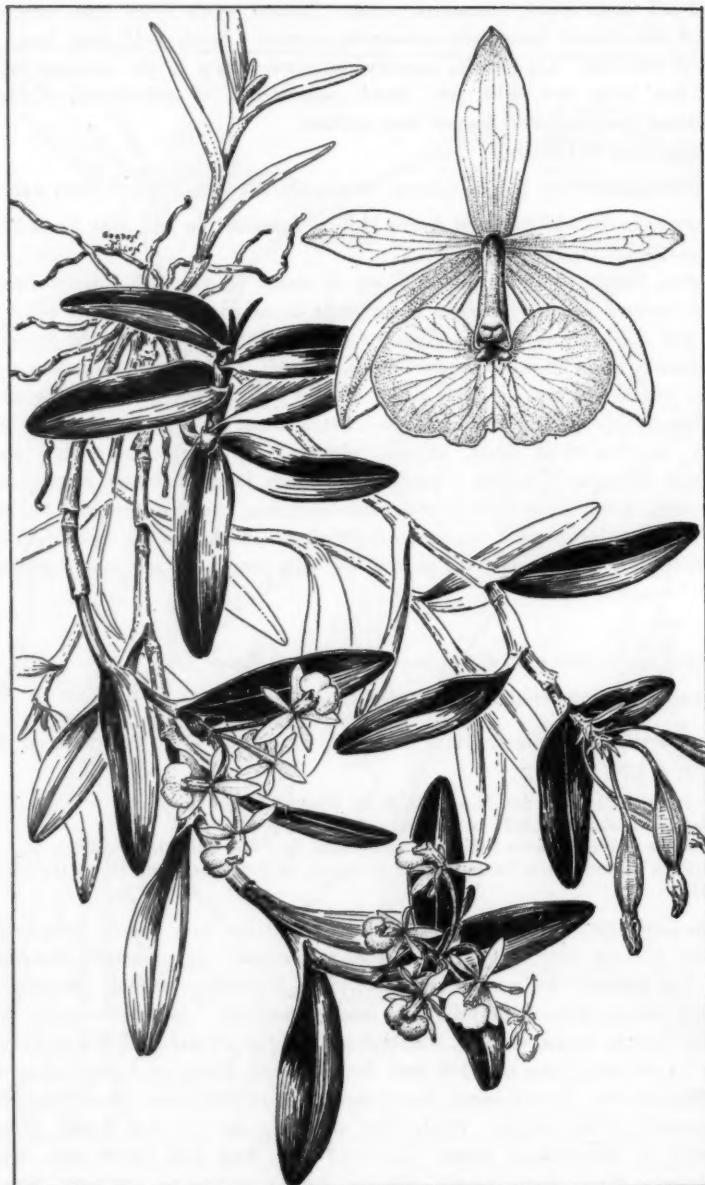
Epidendrum umbellatum Sw. Nov. Gen. & Sp. Prodr. 121. 1788.

Epidendrum latilabrum Lindl. in Bot. Reg. 27: Misc. p. 77. 1841.

Epidendrum chlorocorymbos Schltr. in Fedde Rep. Sp. Nov. Beih. 17:30. 1922.

Epidendrum curvicolumna Ames, Hub. & Schweinf. in Bot. Mus. Leafl. Harv. Univ. 3:67. 1935.

Caespitose or repent, epiphytic herbs up to 50 cm. tall. Stems fractiflex to straight, covered with the pergameneous, amplexicaul, occasionally infundibuliform leaf-sheaths. Inflorescence a short, few- to many-flowered, subumbellate raceme; flowers greenish or yellowish, long-pedunculate. Leaves 2-12 cm. long and 0.5-3.5 cm. broad, variable, from linear-oblong to elliptic-oval, obtuse. Dorsal sepals 14-35 mm. long and 2-4 mm. broad, linear-elliptic to lanceolate or oblanceolate, acute. Lateral sepals 12-35 mm. long and 3-6 mm. broad, elliptic to oblanceolate, acute, oblique. Petals 7-30 mm. long and 1-5 mm. broad, filiform to linear to oblanceolate, acute. Lip 7-18 mm. long and 12-30 mm. broad, unguiculate; claw adnate to the column; lamina transverse, reniform, broader than long, obscurely to prominently 3-lobed; mid-lobe usually bifid and longer

Fig. 128. *Epidendrum difforme*

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than the lateral lobes.

From Florida and Mexico through Central America and the West Indies to Brazil and Peru.

CHIRIQUI: Bajo Chorro, alt. 1800 m., *Davidson* 182; Volcán de Chiriquí, alt. 2100 m., *Davidson* 885; David, alt. 30–80 m., *Pittier* 2845; Lino Hill, alt. 1200–1500 m., *Powell* 296; Monte Lirio, alt. 1300–1900 m., *Seibert* 211. COLOMBIA: hills north of El Valle de Antón, alt. 800–1000 m., *Allen* 2287, 2293; Valle Chiquito, alt. 700–800 m., *Seibert* 514; San Juan, Chorrera, Paja and Frijoles, *Powell* 82, 249, 304, 3259, 3292, 3293, 3294, 3389.

A variable and widely distributed species which may include *E. Barbeyanum* Kränzl., a species reported from Panama by garden specimen. The two following varieties are hardly distinct.

39a. *EPIDENDRUM DIFFORME* Jacq. var. *FIRMUM* (Reichb. f.) Ames, Hub. & Schweinf. in Bot. Mus. Leafl. Harv. Univ. 2:55. 1934.

Epidendrum firmum Reichb. f. Beitr. Orch. Centr.-Am. 87. 1866.

Epidendrum majale Schltr. in Beih. Bot. Centralbl. 36, Abt. 2:406. 1918.

Distinguished from the species in having the mid-lobe of the lip "at most little broader than long, subquadrate."

Guatemala, Costa Rica and Panama.

CHIRIQUI: Finca Lérida to Peña Blanca, alt. 1750–2000 m., *Woodson* & Schery 298.

39b. *EPIDENDRUM DIFFORME* Jacq. var. *SIMULACRUM* (Ames) Ames, Hub. & Schweinf. in Bot. Mus. Leafl. Harv. Univ. 2:57. 1934.

Epidendrum simulacrum Ames, Sched. Orch. 6:75. 1923.

A small-flowered variant of the species, said to be distinguished from "small-flowered specimens of the typical form of the species in having the mid-lobe of the lip a little broader than long."

Panama.

CHIRIQUI: Lino Hill, alt. 1200–1500 m., *Powell* 298.

40. *EPIDENDRUM EBURNEUM* Reichb. f. in Gard. Chron. 404. 1867; Hook. f. in Bot. Mag. 93: t. 5643. 1867.

Epidendrum leucocardium Schltr. in Fedde Rep. Sp. Nov. 12:206. 1913.

Slender, caespitose, epiphytic herbs up to about 50 cm. tall. Stems strict, covered with amplexicaul leaf-sheaths, becoming naked below. Leaves 3–14 cm. long and 0.8–2.5 cm. broad, elliptic to lanceolate, obtuse or acute. Inflorescence short, usually exceeded by the leaves, rachis strongly fractiflex; flowers rather large, white. Dorsal sepal 22–36 mm. long and 2.5–4 mm. broad, linear-lanceolate, acute or acuminate. Lateral sepals 22–36 mm. long and 3–4 mm. broad, linear-lanceolate, acute or acuminate, slightly oblique. Petals 20–35 mm. long and 1–2 mm. broad, filiform. Lip with claw adnate to the column; lamina 20–30 mm. long and 22–28 mm. broad, orbicular-cordate to subquadrate or transversely orbicular-oblong, usually apiculate, entire or rarely lobed (one flower seen with

distinct sinuses); disc with 2 mammillate calluses at the base near the apex of the column.

Panama, near sea-level.

BOCAS DEL TORO: vicinity of Chiriquí Lagoon, Wedel 850, 1625, 2556, 2766. CANAL ZONE: Gatún Lake, near Colón, Powell 38, 132, 3462; "a few miles from Colón in swamps," Henderson. COLÓN: Río Indio de Fató, Pittier 4266.

41. *EPIDENDRUM ELLIPSOPHYLLUM* L. Wms. in Ann. Missouri Bot. Gard. 28:419, t. 22, figs. 1-2. 1941.

Erect epiphytic herbs up to about 25 cm. tall. Stems slightly fusiform and indurated, with only the annual leaves persisting and the sheaths of the older leaves becoming scariosus and disintegrating. Leaves 11-12 cm. long and 2-2.8 cm. broad, elliptic, short-acuminate, usually only 2 or 3 persisting. Peduncles up to about 4 cm. long, ancipitous, generally covered with imbricated bracts. Inflorescence short, 1-, or at most few-flowered; bracts up to about 2 cm. long, cucullate, lanceolate-triangular, acute; flowers green, segments stiff and coriaceous. Sepals 10-12 mm. long and 3-4 mm. broad, elliptic to oblanceolate, obtuse, 5-nerved. Petals about 10-11 mm. long and 3-4 mm. broad, oblanceolate, obtuse, with 3 principal nerves. Lip unguiculate, the claw mostly adnate to the column; lamina 5-6 mm. long and 5-6 mm. broad, orbicular-ovate in outline, 3-lobed, the lateral lobes small and situated toward the base of the lip, with a 2-ridged lamellate callus plate at the junction of the claw and the lamina. Column slender, about 8 mm. long; clinandrium entire and obtuse; pollinia not seen.

Panama.

COCLÉ: hills north of El Valle de Antón, alt. 1000 m., Allen 2178, 2706.

This species is illustrated in fig. 123.

42. *EPIDENDRUM ENDRESII* Reichb. f. in Gard. Chron. n. s. 19:432. 1883; Hook. f. in Bot. Mag. 128: t. 7855. 1902.

Epidendrum Adolphi Schltr. in Fedde Rep. Sp. Nov. 3:108. 1906.

Caespitose or repent, epiphytic herbs up to about 30 cm. long. Stems slender, simple or branched; the amplexicaul leaf-sheaths verrucose and tuberculate. Leaves 1-4.5 cm. long and 0.5-1.5 cm. broad, ovate to oblong-lanceolate, obtuse, coriaceous. Inflorescence a simple, few-flowered raceme; flowers white tinged with purple. Dorsal sepal 8-10 mm. long and 3-5 mm. broad, elliptic to oval, acute. Lateral sepals 9-11 mm. long and 3.5-4.5 mm. broad, ovate-oblong, acute. Petals 8-11 mm. long and 2.5-5 mm. broad, oblanceolate-spatulate to obovate-spatulate, obtuse, slightly oblique. Lip unguiculate; claw adnate to the column; lamina 7-12 mm. long and 6-10 mm. broad, 3-lobed; lateral lobes 2-4 mm. long, explanate, subtriangular, obtuse or acute; mid-lobe bifid with the lobules spreading; disc provided with 2 submammillate calluses under the apex of the column.

Costa Rica and Panama.

CHIRIQUÍ: Bajo Chorro, Boquete District, alt. 1800 m., Davidson 323.

43. EPIDENDRUM EQUITANTIFOLIUM Ames, Sched. Orch. 4:39. 1923.

Epidendrum equitans Lindl. in Bot. Reg. 24: Misc. p. 44. 1838, non Forst. f. nec Ruiz & Pavon.

Erect or pendent, caespitose, epiphytic herbs up to about 4 dm. long. Stems slender, leafy, ancipitous. Leaves 8–27 cm. long and 0.4–1.2 cm. broad, equitant, ancipitous, linear-lanceolate, acute or acuminate, fleshy. Inflorescence borne on an ancipitous, winged peduncle up to 25 cm. long and simulating a leaf, 1- to few-flowered, subcapitate, subtended by a reduced leaf-like bract. Flowers small, dull-colored. Sepals 12–17 mm. long and 1.5–2.5 mm. broad, linear to linear-oblong or elliptic, acute or obtuse. Petals 8–13 mm. long and 1–2 mm. broad, linear-ob lanceolate to linear-elliptic. Lip unguiculate; the claw adnate to the column for about half its length; lamina 7–9 mm. long and 5–6 mm. broad, 3-lobed, provided with a callus on the claw at the base; lateral lobes semi-orbicular; terminal lobe lanceolate to triangular-lanceolate; disc concave or cochleate.

Mexico, British Honduras, Honduras and Panama.

CANAL ZONE: hills east of Panamá City, Powell 206, 3409. CHIRIQUI: "Province of Chiriquí", alt. 900–1050 m., Powell 206.

44. EPIDENDRUM EXASPERATUM Reichb. f. Beitr. Orch. Centr.-Am. 87. 1866.

Epidendrum chondranthum Kränzl. in Vierteljahrsschr. Naturforsch. Ges. Zürich 74:136. 1929.

Erect, caespitose, epiphytic herbs up to about 3 dm. tall, normally less. Stems slender to thickened, simple or branched, covered with amplexicaul leaf-sheaths, becoming naked with age. Leaves 4–13 cm. long and 0.5–4.5 cm. broad, elliptic to lanceolate to lanceolate-oblong, obtuse or acute, those on branches smallest and narrowest. Inflorescences either terminal or lateral or both, the lateral ones originating opposite the base of a leaf, simple or paniculate. Flowers greenish or whitish and mottled with red or purple. Dorsal sepal 8–14 mm. long and 3–6 mm. broad, oblong-lanceolate, obtuse or acute, cucullate, fleshy, verrucose to mammillate dorsally, the mid-nerve prolonged into a subterminal apicule. Lateral sepals similar but elliptic-oblong and usually oblique. Petals 8–11 mm. long and 2–4 mm. broad, oblanceolate, obtuse. Lip unguiculate, the claw adnate to the column, fleshy or callus-thickened; lamina 7–13 mm. long and about as broad, prominently 3-lobed; lateral lobes spreading, originating about opposite the apex of the column, oblong, oblique, obtuse, 3–5 mm. long, rarely lobulate or dentate; mid-lobe bilobulate, emarginate, the lobules divergent to explanate, rarely dentate, obtuse; disc usually provided with a low callus-thickening which extends from the claw to the isthmus between the lateral lobes and usually is terminated by two mammillate processes, rarely continuous from base to apex,—often obscurely verrucose. Column provided with 2 thin stelidia at the apex over the anther.

Costa Rica and Panama.

CHIRIQUÍ: south slope of Volcán de Chiriquí, Boquete District, alt. 2900 m., Terry & Terry 1343; trail from Potrero Muleta to Finca Lérida, Woodson & Scbry 475.

45. *EPIDENDRUM HUNTERIANUM* Schltr. in Fedde Rep. Sp. Nov. Beih. 17:33. 1922.

Pendent or erect epiphytic herbs up to about 30 cm. long. Stems simple, somewhat compressed, densely leaved. Leaves to 7.5 cm. long and 4 cm. broad, oblong or broadly oblong, obtuse, unequally bilobed. Inflorescence short, terminal, 4- to 6-flowered, subumbellate; bracts ovate, obtuse to acuminate. Sepals about 1.5 cm. long, oblong-ligulate, subacute, the laterals oblique. Petals about as long as the sepals but narrower, lanceolate-ligulate, subacute, narrowed at the base. Lip unguiculate, the claw adnate to the column; lamina about 11 mm. long and about 10 mm. broad, suborbicular-cordate, very obtuse, base with 2 oblique calluses, median nerves thickened.

Panama.

CANAL ZONE: Im Überschwemmungsgebiete des Gatun-Sees, Powell 29.

No specimens were seen of this species. Description taken from the original.

46. *EPIDENDRUM IBAGUENSE* HBK. Nov. Gen. & Sp. Pl. 1:352. 1816; C. Schweinf. in Bot. Mus. Leafl. Harv. Univ. 11:229. 1944.

Epidendrum radicans Pavon ex Lindl. Gen. & Sp. Orch. Pl. 104. 1831; Ames, Hub. & Schweinf. Genus Epidendrum in U. S. & Mid. Am. 162. 1936.

Epidendrum radicans Pavon var. *chiriquense* Schltr. in Fedde Rep. Sp. Nov. Beih. 17:39. 1922.

Variable terrestrial or epiphytic herbs with stems from about 0.1 to 1 m. long, erect, pendent or sprawling. Stems simple or branched, usually slender and leaf-bearing on the newer growths, provided with long whitish roots which originate opposite the bases of some of the leaves, or rarely without these roots. Leaves 1.5-12 cm. long and 0.6-3.5 cm. broad, ligulate to oval or oblong to ovate, obtuse, fleshy, lax or crowded. Inflorescence a lax to short subumbellate or paniculate raceme borne at the apex of a scape which may be up to 1 m. long; scape slender, terete, covered with scarious, appressed bracts or becoming naked, often branched. Flowers variable in size and color, from red to white but most often brick-red. Dorsal sepal 12-22 mm. long and 4-7 mm. broad, elliptic or oblong to narrowly obovate, acute. Lateral sepals similar but slightly oblique. Petals 12-20 mm. long and 5-8 mm. broad, elliptic to obovate, acute. Lip unguiculate, the claw adnate to the column; lamina 7-17 mm. long and as broad, 3-lobed, suborbicular-cordate in outline; the lateral lobes large, rounded, larger than the mid-lobe, the margins entire or usually lacerate; mid-lobe usually oblong in outline, bilobulate with the lobules slightly divergent, entire or usually lacerate, equalling or exceeding the tips of the lateral lobes in length; disc provided with 2 flattened submammillate calluses at the apex of the column and usually with 2 inconspicuous lamellate calluses extending from the apex of the column toward the apex of the lip.

Mexico to Panama, Venezuela, Colombia, Peru and British Guiana.

BOCAS DEL TORO: without locality, Wedel 12. CANAL ZONE: Quebrada Ancha, alt. 770 m., Dodge & Steyermark 17042; Barro Colorado Island, Woodworth & Vestal 703, 705. CHIRIQUI: Volcán de Chiriquí, alt. 2450 m., Davidson 945; valley of Rio Caldera, alt. 1400–1600 m., Killip 3517; Chiriquí, alt. 1000–1200 m., Powell 61, 3503, 3515; between Concepción and El Volcán, Peggy White 314; Chiriquí Viejo Valley, Gene White 82; Finca Lérida to Boquete, alt. 1300–1700 m., Woodson, Allen & Seibert 1098; vicinity of Boquete, alt. 1200–1500 m., Woodson & Schery 797.

A variable species, both in vegetative and floral structure. Where it occurs it is often exceedingly common.

47. *EPIDENDRUM IMATOPHYLLUM* Lindl. Gen. & Sp. Orch. Pl. 106. 1831; Ames, Sched. Orch. 4:43, figs. 1923.

Epidendrum lorifolium Schltr. in Fedde Rep. Sp. Nov. Beih. 17:35. 1922.

Epiphytic (or terrestrial) herbs occasionally up to about 1 m. long. Stems slender, somewhat weak, arising from a rhizome, covered with the pergameneous leaf-sheaths, becoming naked with age. Leaves 6–20 cm. long and 0.6–3 cm. broad, ligulate to ligulate-lanceolate, acute or obtuse, coriaceous. Inflorescence simple or occasionally branched, a more or less compact raceme borne at the apex of a slender peduncle which may be up to 2 dm. long; flowers rose to purple. Dorsal sepal 13–20 mm. long and 3.5–5 mm. broad, elliptic to elliptic-ob lanceolate, acute or acuminate. Lateral sepals similar to the dorsal except oblique. Petals 13–18 mm. long and 6–8 mm. broad, elliptic to elliptic-rhomboid, acute. Lip unguiculate; lamina 7–10 mm. long and 5–9 mm. broad, oblong to oblong-ovate in outline, obscurely 3-lobed or lacerate-dentate, especially toward the base; disc with 2 short submammillate calluses at the apex of the column and with a short lamellate callus between them and extending toward the apex of the lip.

Mexico to Panama, Trinidad, Colombia to Peru, the Guianas and Brazil.

CANAL ZONE: Mojinga swamp, Allen 867. PANAMÁ: Sabana, Pittier 3403; Tapia River, Juan Diaz region, Maxon & Harvey 6698; above Peluca Hydrographic Station, Hunter & Allen 652; "Panama", Powell 138.

This species usually has its roots inhabited by ants. It is said to deteriorate in cultivation if the ants are exterminated.

48. *EPIDENDRUM INCOMPTUM* Reichb. f. in Bot. Zeit. 10:733. 1852; Ames in Bot. Mus. Leafl. Harv. Univ. 4:64, t. 1936.

Erect or scandent epiphytic herbs up to about 70 cm. long. Stems branched or rarely simple, bearing leaves near the apex of the stem, covered with the amplexicaul leaf-sheaths or naked below. Leaves 3–13 cm. long and 1.5–5.5 cm. broad, narrowly oblong to oblanceolate-acute, coriaceous. Inflorescence a few- to several-flowered terminal raceme, about equal to the subtending leaves; flowers greenish. Dorsal sepal 11–15 mm. long and 3.5–5.5 mm. broad, oblanceolate, acute. Lateral sepals 11–15 mm. long and 4.5–6 mm. broad, semilunate, acute. Petals 11–14 mm. long and 1.5–2 mm. broad, narrowly oblanceolate, acute. Lip unguiculate; claw adnate to the column; lamina 7–9 mm. long and 12–17 mm. broad, fleshy,



EPIDENDRUM

incomptum

Reichb.f.

Fig. 129. *Epidendrum incomptum*

(288)

3-lobed, subreniform in outline, lobes about equal, the laterals divaricate and rounded, the mid-lobe subtriangular; disc without calluses.

Mexico, Guatemala, Costa Rica and Panama.

CHIRIQUI: "Chiriquí", Warscewicz.

No specimens of this species have been found in Panama since the original was collected.

49. EPIDENDRUM ISOMERUM Schltr. in Fedde Rep. Sp. Nov. 2:132. 1906.

Pendent or repent epiphytic herbs up to 1 m., or perhaps more, long. Stems slender, simple or usually branched, flexuous, bearing leaves toward the apex of the new growths, covered with the chartaceous leaf-sheaths, even when old. Leaves 2-12 cm. long and 0.15-0.4 cm. broad, linear, acute, flat or subterete. Inflorescence a single flower borne at the apex of new growths. Flower small, yellowish. Sepals 11-15 mm. long and 2-3 mm. broad, linear-lanceolate, acute, margins revolute. Petals 11-13 mm. long and 1.2-1.5 mm. broad, elliptic-linear, acute. Lip unguiculate, claw adnate to the column; lamina 8-9 mm. long and 2-2.5 mm. broad, narrowly lanceolate, trulliform or canaliculate, fleshy, acute; disc provided with 2 short inconspicuous calluses at the base and with 1 sublamellate median callus extending from the base to about the middle of the lamina.

Mexico, Guatemala, British Honduras, Costa Rica and Panama.

BOCAS DEL TORO: between Finca St. Louis and Konkintoë, alt. 10-15 m., Woodson, Allen & Seibert 1886. CANAL ZONE: Rio Medio, Miller 1746.

50. EPIDENDRUM LOCKHARTIOIDES Schltr. in Fedde Rep. Sp. Nov. Beih. 19:39. 1923; Ames, Sched. Orch. 8:46, t. 24. 1925.

Small, densely caespitose, epiphytic herbs up to about 2.5 dm. tall, usually less. Stems covered with the subequitant bases of the leaves. Leaves 1-3.5 cm. long, laterally compressed, approximate, spreading, cultriform, and the sheathing base subequitant, 5-10 mm. broad. Inflorescence composed of several flowers borne in the axils of the upper (sheath-like) leaves; flowers inconspicuous, greenish-yellow or green. Dorsal sepal 6-7 mm. long and about 3 mm. broad, broadly lanceolate, acute, cucullate. Lateral sepals 6-8 mm. long and 2-3 mm. broad, cucullate, arcuate, lanceolate, prominently keeled along the mid-nerve dorsally, the keel usually denticulate. Petals 4-7 mm. long and 0.5-1 mm. broad, linear, obtuse, slightly arcuate. Lip 5-7 mm. long, unguiculate; claw adnate to the column; lamina 4-5 mm. long and as broad, cordate-orbicular to subquadrate, obtuse, often with a short apicule, mid-nerve callus-thickened.

Costa Rica and Panama.

COCLÉ: El Valle de Antón, alt. 600-1000 m., Allen 1680, 2296.

51. EPIDENDRUM MICRODENDRON Reichb. f. in Beitr. Orch. Centr.-Am. 84. 1866.

Pendent or repent epiphytic herbs up to about 70 cm. long. Stems slender, branched, covered with the leaf-sheaths or becoming naked. Leaves 1.5-5 cm. long and 0.3-0.9 cm. broad, linear-ligulate to elliptic-oblong, obtuse and with the apex

obscurely and unequally bilobed. Inflorescence a short terminal subfractiflex raceme of 2–8 flowers; bracts 4–7 mm. long, chartaceous, cucullate, acute. Dorsal sepal 7–10 mm. long and 1.5–3 mm. broad, lanceolate, acute. Lateral sepals 6.5–9 mm. long and 2.5–3 mm. broad, lanceolate to ovate-lanceolate, acute, oblique. Petals 5–10 mm. long and 0.7–1.5 mm. broad, linear to elliptic-linear, acute. Lip unguiculate; the claw short, adnate to the column; lamina 5–8 mm. long, and when expanded about as broad, 3-lobed but obscurely so, the lateral lobes erect, rounded, enfolding the short column, mid-lobe lanceolate or narrowly triangular, acute or acuminate, fleshy, and the apex subterete; disc provided with a small cucullate callus under the apex of the column which is entire or tridentate at the apex. Column provided with a horn-like process at its apex.

Costa Rica and Panama.

CHIRIQUI: Cuesta de las Palmas, Serra de la Horqueta, alt. 1700–2100 m., Pittier 3220.

The specimen from Panama is not typical—perhaps represents a distinct species.

52. *EPIDENDRUM MOYOBAMBAE* Kränzl. in Fedde Rep. Sp. Nov. 1:185. 1905; C. Schweinf. in Bot. Mus. Leafl. Harv. Univ. 11:238. 1944.

Epidendrum subpatens Schltr. in Fedde Rep. Sp. Nov. Beih. 17:40. 1922.

Epidendrum benignum Ames in Sched. Orch. 2:26. 1923.

Pendent or ascending, caespitose, epiphytic herbs up to about 8 dm. long. Stems slender, simple, covered with the leaf-sheaths above, naked at the base. Leaves 6–16 cm. long and 1.5–4 cm. broad, elliptic-lanceolate to elliptic-ovate, acute, coriaceous. Inflorescence a terminal few- to many-flowered pendent raceme up to about 4 dm. long; flowers rather large, greenish to yellowish or whitish. Dorsal sepal 17–25 mm. long and 5–9 mm. broad, oblanceolate, acute or obtuse. Lateral sepals 17–25 mm. long and 5–9 mm. broad, oblanceolate to narrowly obovate, oblique, obtuse. Petals 16–22 mm. long and 3–7 mm. broad, linear-oblanceolate to broadly oblanceolate, obtuse or acute, slightly oblique. Lip unguiculate; the claw adnate to the column; lamina 15–25 mm. long and 20–30 mm. broad, 3-lobed; lateral lobes spreading or deflexed, suborbicular, obtuse, much larger than the mid-lobe; mid-lobe bilobulate, the lobules more or less divaricate, smaller than either lateral lobe; disc provided with 2 small submammillate or mammillate calluses under the apex of the column and with 1 or rarely 3 lamellate calluses extending along or near the median line.

Guatemala, Costa Rica, Panama, Trinidad, Colombia, Peru and Brazil.

CANAL ZONE: Gatún Lake, Powell 86, 3337, 3558; Barro Colorado Island, Shattuck 216. VERAGUAS: Santiago, alt. 15 m., Powell 86, 3558.

Presumably this was originally confused with *Epidendrum patens* Sw. It may prove to be the same. It is a rather showy plant. Powell's numbers for the two localities are the same, and it is possible that all of the material came from one original collection.

Fig. 130. *Epidendrum nocturnum*

53. *EPIDENDRUM NOCTURNUM* Jacq. Enum. Pl. Carib. 29. 1760; Select. Stirp. Am. 225, t. 139. 1763; Ames, Hub. & Schweinf. Genus *Epidendrum* in U. S. and Mid. Am. 129. 1936.

Epidendrum nocturnum Jacq. var. *panamense* Schltr. in Fedde Rep. Sp. Nov. Beih. 17:36. 1922.

Variable, caespitose or subrepent, epiphytic plants up to 1 m. tall. Stems slender, simple, covered with the scabrous leaf-sheaths or becoming naked. Leaves

5–15 cm. long and 0.8–6.5 cm. broad, elliptic, elliptic-oblong, ligulate or oval, acute or obtuse, coriaceous to fleshy. Inflorescence a 1- to few-flowered terminal raceme (1 flower open at a time); rachis when present fractiflex; flowers large, usually white. Sepals similar, 35–90 mm. long and 2–5 mm. broad, from filiform to linear, acute or acuminate. Petals similar to the sepals but smaller, 35–80 mm. long and 1–3 mm. broad. Lip unguiculate, claw adnate to the column; lamina up to 65 mm. long, prominently 3-lobed; lateral lobes subparallel, acute, oblique, lanciform, 10–40 mm. long; mid-lobe subfiliform, 20–40 mm. long.

Florida, Mexico to Panama, the West Indies and tropical South America.

BOCAS DEL TORO: vicinity of Chiriquí Lagoon, Wedel 1001, 2938. CANAL ZONE: hills near Panamá City, Gatún Lake, Frijoles, San Juan, Chorrera, Paja, Powell 35, 216, 217, 3020, 3055, 3073, 3075. CHIRIQUI: "Chiriquí", alt. 1200–1400 m., Powell 347. COCLE: hills north of El Valle de Antón, alt. 800–1000 m., Allen 2257.

Occasional throughout the American tropics, usually found at low elevations but occasionally in the mountains.

54. *EPIDENDRUM OBESUM* Ames in Sched. Orch. 2:31. 1923.

Coarse, caespitose, epiphytic herbs up to about 6 dm. tall. Stems slender, covered with the loosely amplexicaul complanate leaf-sheaths or reduced leaves. Leaves 5–20 cm. long and 3–7 cm. broad, elliptic-ligulate to oval, obtuse, usually crowded on the stem. Inflorescence a short, few- to several-flowered raceme subtended by a large spathaceous sheath, the flowers long-pedunculate, whitish. Dorsal sepal 35–55 mm. long and 3–7 mm. broad, linear or linear-elliptic, acute. Lateral sepals similar to the dorsal except slightly arcuate. Petals 28–50 mm. long and 1.5–4 mm. broad, linear, acute. Lip unguiculate; the claw adnate to the column; lamina 18–30 mm. long and up to about 15 mm. broad, 3-lobed; the lateral lobes semiorbicular to subquadrate, explanate, obtuse, about 6–8 mm. long and as broad; mid-lobe about 14–25 mm. long, linear-lanceolate to very narrowly triangular, acute; disc provided with 2 fleshy calluses at the base, the apices of which are free and porrect. Pedicellate ovary up to about 12 cm. long.

Nicaragua, Costa Rica and Panama. Possibly also in Ecuador.

CHIRIQUI: Bajo Chorro, Boquete District, alt. 1800 m., Davidson 1288.

The flowers somewhat resemble those of *Epidendrum nocturnum* Jacq.

55. *EPIDENDRUM PANAMENSE* Schltr. in Fedde Rep. 12:212. 1913.

Caespitose epiphytic herbs up to about 2 dm. tall. Stems ancipitous, covered with amplexicaul leaf-sheaths, provided with 2–3 leaves toward the apex. Leaves 8–11 cm. long and 1–1.3 cm. broad, elliptic to lanceolate, acuminate. Inflorescence a compact few-flowered distichous raceme terminating a slender ancipitous peduncle. Sepals about 1.2 cm. long, ligulate, apiculate, the laterals oblique. Petals about as long as the sepals, linear. Lip unguiculate; claw adnate to the column; lamina about 5 mm. long and 4 mm. broad, ovate, shortly acuminate, subcordate at the base, provided with 2 calluses at the base which have a short keel between them. (*Description compiled from the original*).

Panama.

PANAMÁ: Cerro de Garagará, Sambú Basin, southern Darién, alt. 550–974 m., Pittier 5635.

Allied to *Epidendrum Allenii* L. Wms. and to *E. Lankesteri* Ames.

56. EPIDENDRUM PANICULATUM Ruiz & Pavon, Syst. Veg. 243. 1798; Hook. f. in Bot. Mag. 94: t. 5731. 1868; Ames, Hub. & Schweinf. in Bot. Mus. Leafl. Harv. Univ. 2:67. 1934.

Epidendrum floribundum HBK. Nov. Gen. & Sp. 1:353, t. 86. 1816; Hook. in Bot. Mag. 65: t. 3637. 1838.

Epidendrum turialvae Reichb. f. in Gard. Chron. 1871:1678. 1871.

Epidendrum resectum Reichb. f. in Linnaea 41:82. 1877.

Epidendrum piliferum Reichb. f. loc. cit. 83.

Epidendrum Isthmi Schltr. in Fedde Rep. Sp. Nov. Beih. 17:34. 1922.

Epidendrum reflexum Ames & Schweinf. in Sched. Orch. 8:49. 1925.

Caespitose epiphytic or saxicolous plants up to about 1.5 dm. tall, often rank in growth. Stems simple, erect or spreading, covered with the amplexicaul leaf-sheaths or naked with age. Leaves 4–25 cm. long and 0.5–7 cm. broad, variable but essentially linear-lanceolate to oval, acute or acuminate, rarely obtuse, coriaceous. Inflorescence from shorter than the subtending leaves to much longer, from a simple few-flowered raceme to a compound multiflorous panicle, terminal, usually subtended with a spathe which may be up to 6 cm. long; bracts on the peduncle from very short to about 7 cm. long; flowers variable in size and color. Dorsal sepal 7–16 mm. long and 2–3.5 mm. broad, elliptic to broadly oblanceolate, acute or obtuse. Lateral sepals 8–16 mm. long and 2.5–4.5 mm. broad, elliptic to broadly lanceolate, acute or obtuse. Petals 8–15 mm. long and 0.2–2 mm. broad, usually filiform or filiform-clavellate but occasionally linear-oblanceolate. Lip unguiculate; claw adnate to the column; lamina 4–10 mm. long and 5–12 mm. broad, from nearly simple to 3- or 4-lobed (commonly 3-lobed); lateral lobes from dolabriform to obliquely triangular-ovate or ovate, outer margin entire to sublacerate; mid-lobe usually strongly bilobulate, but often from truncate to retuse, often apiculate, lobules variable in form and divergence, linear to oblong to triangular or spatulate, margin entire or somewhat lacerate; disc with 2 short sublamellate calluses at the base, often provided with one or more callus ridges parallel to the mid-nerve.

Mexico to Panama and in South America to Argentina.

CANAL ZONE: Quebrada Ancha, Steyermark & Allen 17109; hills east of Panamá City, and Rio Indio near the mouth of Chagres River, Powell 104, 323, 3396. CHIRQUI: El Boquete, alt. 100–1300 m., Pittier 2973; "Chiriquí", Powell 233, 3174; Rio Chiriquí Viejo, alt. 1300–1900 m., Seibert 145; Upper Rio Chiriquí Viejo, White 326. COCLÉ: vicinity of La Mesa, north of El Valle de Antón, alt. 1000 m., Allen 2389. PANAMÁ: Rio Tapía, Standley 28137.

A widespread and variable species. Only the essential synonymy for Panama and adjacent Costa Rica has been given above.

Fig. 131. *Epidendrum pendens*

57. EPIDENDRUM PENDENS L. Wms. in Ann. Missouri Bot. Gard. 28:421, t. 23.
1941.
Pendent epiphytic herbs about 45 cm. long. Leaves 9-15 cm. long and 2-3.5

cm. broad, elliptic to elliptic-lanceolate, coriaceous, distichous, marginate, gray, deciduous; leaf-sheaths loose, completely investing the stem, pergameneous, anciptious, the abscission line prominent. Inflorescence of 1 or few large terminal flowers subtended by a leaf-like sheath up to 3 cm. long; flowers large for the genus, green. Dorsal sepal about 5 cm. long and 1.2 cm. broad, oblong-ob lanceolate, acute, fleshy, with 5-7 main nerves. Lateral sepals 4.3-4.8 cm. long and 1.5 cm. broad, elliptic, acute, fleshy, with about 7 main nerves. Petals about 4.5-5 cm. long and 2 mm. broad, linear, somewhat narrowed to the base, obtuse or acute, fleshy, 1-nerved. Lip with the claw adnate with the column to the apex of the column; lamina about 2.5-3 cm. long and 3 cm. broad, 3-lobed, suborbicular in general outline, with a thickened central nerve and with thickened nerves or ridges radiating from it and covering the remainder of the lip, lateral lobes rounded, about 1.5 cm. long, mid-lobe 1-1.5 cm. long and about 1.5 cm. broad, subquadrate, emarginate. Column 1.5-2 cm. long and 6-8 mm. in diameter at the apex, fleshy.

Panama.

COCLÉ: vicinity of La Mesa, El Valle de Antón, alt. 1000 m., Allen 2570.

58. EPIDENDRUM PHYSODES Reichb. f. in Gard. Chron. 289. 1873.

Small repent or caespitose, epiphytic or terrestrial herbs up to about 30 cm. long. Stems simple, slender, densely leaved, prolonged into a long peduncle above. Leaves 1.5-6.5 cm. long and 0.3-0.8 cm. broad, lanceolate, the margins often revolute. Inflorescence a short few-flowered raceme (with 1 flower open at a time?) on the apex of a long peduncle. Dorsal sepal 5-9 mm. long and 2-3 mm. broad, elliptic to oblong-lanceolate, acute. Lateral sepals 5-9 mm. long and 2.3-3.6 mm. broad, elliptic-oblong to oblong-ovate, somewhat oblique, acute. Petals 4.5 mm. long and 0.5-0.8 mm. broad, linear to subfiliform. Lip unguiculate; claw adnate to the column; provided with a spur which is 3-4 mm. long, adnate to the ovary for a part of its length or occasionally for all of its length but usually the obtuse and rounded tip free; lamina 3-5 mm. long and 4-6 mm. broad, entire, subreniform or suborbicular, fleshy; disc with 2 mammillate calluses near the apex of the column and often with a longitudinal callus-thickening along the median line.

Guatemala, Costa Rica and Panama.

BOCAS DEL TORO: vicinity of Chiriquí Lagoon, Wedel 1126.

This species is atypical in the genus *Epidendrum* in that it is provided with a distinct spur which apparently originates from the lip. If generically distinct it belongs in Lindley's genus *Physinga*. Suitable material for comparative studies is not available.

59. EPIDENDRUM PLATYSTIGMA Reichb. f. in Beitr. Orch. Centr.-Am. 83. 1866.

Epidendrum ramonianum Schltr. in Fedde Rep. Sp. Nov. Beih. 19:217. 1923.

Epidendrum gibbosum L. Wms. in Ann. Missouri Bot. Gard. 28:420, t. 21, figs. 7-10. 1941.



Fig. 132. *Epidendrum platystigma*

Simple or branched, repent, terrestrial or epiphytic herbs up to probably more than 5 dm. tall. Stems covered with the very loose leaf-sheaths or becoming naked and vernicose, up to 15 mm. in diameter. Leaves 2-15 cm. long and 0.5-2.5 cm.

broad, linear-lanceolate or linear-oblong to ligulate, obtuse and often unequally bilobulate at the apex, coriaceous, leaves on the sterile or poorly flowered branches largest, on the heavily flowered branches very small; leaf-sheaths usually somewhat inflated and pergameneous, soon disintegrating. Inflorescences short, few-flowered, terminal, the rachis fractiflex; bracts up to 2 cm. long, scarious, cochleate, acute; flowers greenish or whitish, often marked with red. Dorsal sepal 7–12 mm. long and 4–6 mm. broad, elliptic-oblong, acute. Lateral sepals 7–12 mm. long and 3–7 mm. broad, narrowly obovate to oblong-ovate, obtuse or acute, apiculate or winged dorsally along the mid-nerve. Petals 8–10 mm. long and 3–5 mm. broad, oblanceolate to narrowly obovate, obtuse. Lip 6–12 mm. long and 5–10 mm. broad, broadly oblong to suborbicular or cordate, obtuse or shallowly emarginate, fleshy and tumid along the mid-nerve or with several raised nerves, gibbous at the base, provided with an inconspicuous bi- or trilobate callus under the apex of the column.

Costa Rica and Panama.

CHIRIQUI: Volcán de Chiriquí, alt. 2600 m., Davidson 971; Casita Alta to Serra Copete, alt. 2300–3300 m., Woodson & Schery 367.

60. EPIDENDRUM POLYANTHUM Lindl. Gen. & Sp. Orch. Pl. 106. 1831; Batem. Orch. Mex. & Guat. t. 34. 1842.

Epidendrum pergameneum Reichb. f. Beitr. Orch. Centr.-Am. 86. 1866

Epidendrum quinquelobum Schltr. in Fedde Rep. Sp. Nov. Beih. 19:125. 1923.

Caespitose epiphytic herbs, often rank-growing, up to about 1.5 m. tall. Stems erect or ascending, simple, leafy above. Leaves 5–25 cm. long and 0.8–5 cm. broad, from linear to oval or ovate, acute or acuminate, variable. Inflorescence terminal or lateral (i. e. flowers or racemes borne from below a leaf) or both, usually consisting of racemes borne laterally on an elongated peduncle, rarely the racemes branching and becoming paniculate, rarely consisting of a single short terminal raceme; flowers extremely variable in size and coloration. Dorsal sepal 6.5–13 mm. long and 2.5–3.5 mm. broad, oblanceolate, obtuse, papillose externally. Lateral sepals 6.5–16 mm. long and 2.5–5 mm. broad, oblanceolate, obtuse, oblique, papillose externally. Petals 5–12 mm. long and about 0.5 mm. broad, filiform or subfiliform. Lip unguiculate; claw adnate to the column; lamina 4–7 mm. long and 4–7 mm. broad, usually broader than long, 3-lobed or rarely almost entire; the lateral lobes oblong to flabellate, entire or usually undulate, dentate or lacerate; mid-lobe from subquadrate to oblong, retuse or bilobulate, the lobules sometimes explanate; disc provided with 2 mammillate calluses near the apex of the column and with one or more callus-thickened ridges along the median line. Ovary and pedicel usually papillose.

Guatemala, Honduras, Nicaragua, Costa Rica and Panama. Venezuela and Brazil.

CHIRIQUI: Bajo Chorro, alt. 1400 m., Davidson 457.

A polymorphic species which, however, is usually easy to recognize.

60a. *EPIDENDRUM POLYANTHUM* Lindl. var. *MYODES* (Reichb. f.) Ames, Hub. & Schweinf. in Bot. Mus. Leafl. Harv. Univ. 3:75. 1935.

Epidendrum myodes Reichb. f. Beitr. Orch. Centr.-Am. 86. 1866.

Similar to the species except the lateral sepals are said to be only 4–6.5 mm. long (6.5–16 mm. long in the species).

Honduras, Costa Rica and Panama.

CHIRIQUI: "Chiriquí", alt. 1200 m., Powell 188, 242, 3398, 3452, 3464, 3472, 3505.

61. *EPIDENDRUM PORPAX* Reichb. f. in Bonplandia 3:220. 1855.

Epidendrum porphyropbyllum Schltr. in Fedde Rep. Sp. Nov. Beih. 17:37. 1922.

Small, caespitose, epiphytic herbs up to about 8 cm. tall. Stems short, covered with the scarious amplexicaul sheaths of the leaves. Leaves 7–25 mm. long and 2–7 mm. broad, ligulate to lanceolate or oblong-lanceolate, obtuse or acute, fleshy, spreading. Inflorescence consisting of a single flower from the apex of the stem, subtended by a scarious sheath; flowers large for the plant, sepals and petals greenish, lip purple. Dorsal sepal 7–14 mm. long and 2–5 mm. broad, lanceolate to lanceolate-ovate, acute. Lateral sepals 8–14 mm. long and 3–5.5 mm. broad, lanceolate to lanceolate-ovate, acute, adnate at the base to the claw of the lip and to the column for about the length of the column. Petals 7–13 mm. long and 0.5–1.5 mm. broad, linear, obtuse, obscurely ciliolate toward the apex. Lip up to 18 mm. long, unguiculate; claw narrow, adnate to the column; lamina 9–15 mm. long and as broad, suborbicular-cordate, obscurely ciliolate, fleshy, provided with 2 mammillate calluses at the base under the apex of the column.

Mexico, Guatemala, Honduras, Costa Rica, Panama and Venezuela.

CANAL ZONE: foothills east of Panamá City, Powell 183. CHIRIQUI: "Province of Chiriquí", alt. 1200 m., Powell 4000.

62. *EPIDENDRUM POWELLII* Schltr. in Fedde Rep. Sp. Nov. Beih. 17:38. 1922.

Caespitose epiphytic herbs up to about 30 cm. tall. Stems simple, somewhat flexuose, covered with leaf-sheaths and ancipitous. Leaves 3.5–16 cm. long and 0.35–1.2 cm. broad, elliptic-linear, acute. Inflorescence up to about 7 cm. long, a terminal, densely flowered raceme subtended by one or more spathaceous bracts. Flowers small, whitish with pink or orange markings. Dorsal sepal 2.5–3.5 mm. long and 1–1.2 mm. broad, narrowly lanceolate to oblong-oval, acute. Lateral sepals 3–4 mm. long and 1.5–2 mm. broad, oblong-oval to ovate, oblique, acute. Petals 2–3 mm. long and 0.3–0.4 mm. broad, linear, acute. Lip unguiculate; claw adnate to the column; lamina 1.5–3 mm. long and about as broad, 3-lobed; the lateral lobes dolabriform to semi-orbicular, entire or crenate or lobulate; mid-lobe ligulate to subtriangular, acute; disc with 2 small calluses at the base.

Panama.

CHIRIQUI: "Chiriquí", alt. 1200 m., Powell 228, 3445, 3456. COCLÉ: hills south of El Valle de Antón, alt. 600–800 m., Allen 2797.

63. *EPIDENDRUM PROBIFLORUM* Schltr. in Fedde Rep. Sp. Nov. Beih. 17:39. 1922.

Small, caespitose, epiphytic herbs up to about 15 cm. tall. Stems slender, short, produced into a long peduncle above, bearing 2-3 leaves. Leaves 3-5 cm. long and 0.6-1.2 cm. broad, linear-lanceolate to lanceolate, acute. Inflorescence a few-flowered raceme at the apex of the peduncle; flowers small, purple-brown with a white lip. Dorsal sepal about 5 mm. long and 1.5 mm. broad, lanceolate, acute. Lateral sepals about 4.5 mm. long and 2 mm. broad, ovate-lanceolate, slightly oblique, acute. Petals about 4 mm. long and 1 mm. broad, elliptic, obscurely serrulate, acute. Lip unguiculate; claw adnate to the column; lamina about 3 mm. long and 4 mm. broad, entire, reniform-cordate, acute, fleshy; disc provided with a single sublamellate callus near the middle.

Panama.

CHIRIQUI: "Chiriquí", Powell 250.

Known to us only by the inadequate specimen cited.

64. *EPIDENDRUM PSEUDEPIDENDRUM* Reichb. f. *Xenia Orch.* 1:160, t. 53. 1856;
Hook. f. in *Bot. Mag.* 97: t. 5929. 1871.

Pseudepidendrum spectabile Reichb. f. in *Bot. Zeit.* 10:733. 1852, not Focke nor Reichb. f.

Caespitose epiphytic herbs up to about 1 m. tall. Stems slender, simple, leafy above, naked below. Leaves 6-20 cm. long and 1.5-4.5 cm. broad, oblanceolate, acute, coriaceous. Inflorescence 1 or more, 1- to 3-flowered terminal racemes borne on a more or less elongated peduncle, the peduncle covered at the base with several imbricated bracts; flowers relatively large, sepals and petals greenish, lip orange. Dorsal sepal 26-30 mm. long and 3-5 mm. broad, oblanceolate, acute. Lateral sepals 22-32 mm. long and 5-7 mm. broad, oblanceolate, acute, sometimes obtuse. Petals 22-30 mm. long and 2-3 mm. broad, linear-oblanceolate, obtuse. Lip unguiculate; the long claw adnate to the column; lamina 13-17 mm. long and 15-22 mm. broad, retuse, transversely oblong or subquadrate to suborbicular-flabellate, entire (or obscurely 3-lobed), crenulate, dentate or lacerate; disc provided with 2 short lamellate calluses at the apex of the column and a longitudinal 1- to 5-ridged callus-thickening along the median line, from base to apex.

Costa Rica and Panama.

CHIRIQUI: "auf Ficus-Bäumen der Cordilleren von Chiriquí", alt. 1200 m., Warszewicz.

Apparently one of the prettier Epidendrums occurring in Panama.

65. *EPIDENDRUM PUDICUM* Ames, *Sched. Orch.* 6:71, fig. 10. 1923.

Small, caespitose, epiphytic herbs up to about 20 cm. tall. Stems slender, obscurely fractiflex, covered with the persistent, pergameneous, amplexicaul leaf-sheaths. Leaves 15-30 mm. long and 1-3 mm. broad, linear, obtuse, fleshy. Inflorescence a 1- to few-flowered subumbel. Dorsal sepal 8-10 mm. long and 1.5-2.5 mm. broad, linear-oblanceolate, acute. Lateral sepals similar to the dorsal but slightly arcuate. Petals about 8 mm. long and nearly 1 mm. broad near the apex. Lip unguiculate; claw adnate to the column; lamina about 5 mm. long and

7 mm. broad, subtriangular-cordate to reniform, obscurely 3-lobed, acute, provided with 2 slightly divergent submammillate calluses at the base.

Panama.

CHIRIQUI: Palo Alto, alt. 1360 m., Powell 319, 3412.

Closely allied to *Epidendrum difforme* Jacq.

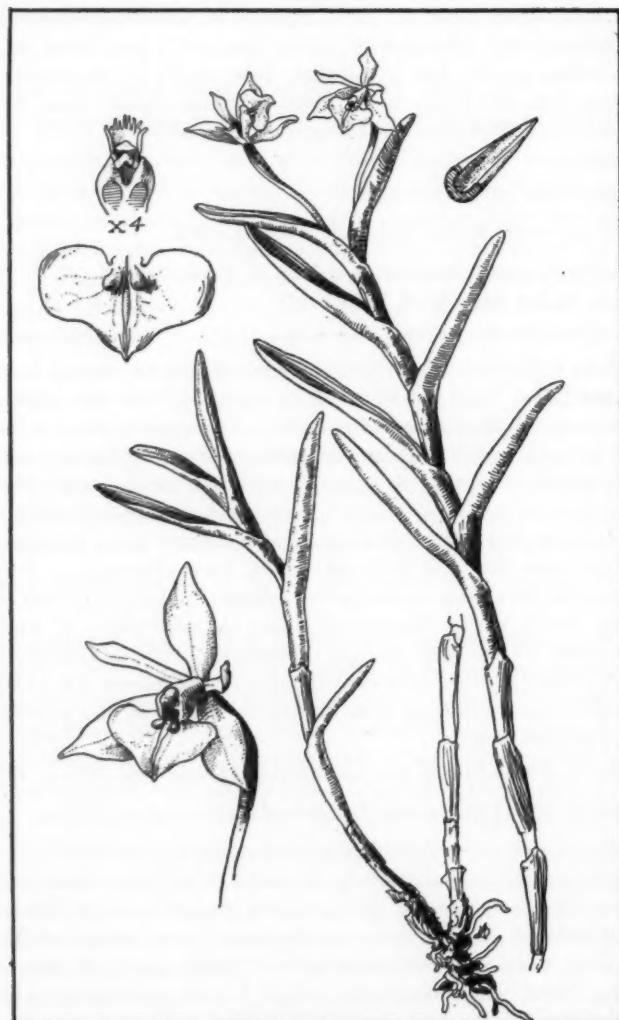


Fig. 133. *Epidendrum pudicum*

(300)

66. *EPIDENDRUM RAMOSUM* Jacq. *Enum. Pl. Carib.* 29. 1760; *Select. Stirp. Am.* 221, t. 132. 1763; Ames, Hub. & Schweinf. in *Bot. Mus. Leafl. Harv. Univ.* 2:45. 1934.

Epidendrum flexicaule Schltr. in *Beih. Bot. Centralbl.* 36, Abt. 2:403. 1918.
Epidendrum modestiflorum Schltr. in *Fedde Rep. Sp. Nov. Beih.* 19:213. 1923.

Erect or scandent epiphytic herbs, perhaps up to a meter or more long. Stems slender, simple or branched, covered with the leaf-sheaths, becoming naked with age. Leaves 1–12 cm. long and 0.2–1.5 cm. broad, linear to lanceolate to oblong-elliptic, obtuse and the apex usually unequally bilobed. Inflorescence short and few- to several-flowered from a fractiflex raceme; bracts scarious, conspicuous; flowers small, variable in size. Sepals 4.5–13 mm. long and 1.5–3 mm. broad, linear-lanceolate to elliptic-oblong, occasionally carinate dorsally. Petals 4.5–13 mm. long and 0.8–2.3 mm. broad, linear to linear-spatulate, acute or obtuse. Lip unguiculate; claw adnate to the column; lamina 4–9 mm. long and 2–5 mm. broad, simple or subtrilobate, triangular-cordate to lanceolate-cordate, acute or obtuse, provided with a longitudinal callus which is bifurcate at the base.

Mexico to Panama, the West Indies and in South America to Brazil and Peru.

CHIRIQUI: Lino Hill, alt. 1550 m., Powell 322. COCLÉ: El Valle de Antón, alt. 600–1000 m., Allen 1244, 2827, 2836.

- 66a. *EPIDENDRUM RAMOSUM* Jacq. var. *ANGUSTIFOLIUM* (Cogn.) L. Wms. in *Ann. Missouri Bot. Gard.* 28:422. 1941.

Epidendrum imbricatum Lindl. var. *angustifolium* Cogn. in *Mart. Fl. Bras.* 3⁵:171. 1898, as var. *angustifolia*.

Epidendrum imbricatum Lindl. Gen. & Sp. Orch. Pl. 110. 1831, non Lam.

Epidendrum biflorum Cogn. in *Bull. Herb. Boiss.* II, 2:337, figs. 1–3. 1902, non Forst. f. nec R. & P.

Epidendrum Boissierianum Schltr. in *Beih. Bot. Centralbl.* 36, Abt. 2:459. 1918.

Epidendrum santaclarens Ames, *Sched. Orch.* 4:49. 1923.

Epidendrum ramosum Jacq. var. *imbricatum* Ames, Hub. & Schweinf. in *Bot. Mus. Leafl. Harv. Univ.* 2:47. 1934.

Intergrades with the species but usually varies in having thicker stems, fine maculations on the leaf-sheaths and bracts, the bracts more tightly imbricated and conduplicate; leaves usually broader and larger.

Guatemala, Costa Rica, Panama, the West Indies, Brazil.

BOCAS DEL TORO: Rio Cricamola, between Finca St. Louis and Konkintoë, alt. 10–15 m., Woodson, Allen & Seibert 1898.

67. *EPIDENDRUM REPENS* Cogn. in *Fedde Rep. Sp. Nov.* 7:122. 1909.

Small, repent or pendent, epiphytic herbs up to about 5 dm. long. Stems slender, much branched, leafy, covered with the persistent leaf-sheaths, slightly anciptous, often flexuose. Leaves 6–25 mm. long and 2–6 mm. broad, linear-oblong to oblong to ovate, obtuse, coriaceous, usually obtuse and obscurely and unequally bilobed at the apex. Inflorescence a single flower borne terminally on the stem, subtended by one or more short scarious bracts; flowers small, inconspicuous, maroon. Dorsal sepal 7–8 mm. long and about 2 mm. broad, elliptic-oblong or

Fig. 134. *Epidendrum rigidum*

(302)

lanceolate, acute. Lateral sepals 7–8 mm. long and 1.8–3 mm. broad, elliptic-oblong to lanceolate-ovate, acute. Petals 6–7 mm. long and 0.7–1.5 mm. broad, linear, acute. Lip unguiculate; claw adnate to the column; lamina about 4 mm. long and as broad, triangular-cordate to cordate, simple, fleshy, ecallose or provided with a short, fleshy, lamellate callus toward the apex.

Mexico, Guatemala, Costa Rica, Panama, the West Indies and Venezuela.

CHIRIQUÍ: vicinity of Cerro Punta, alt. 2000 m., Allen 1530.

68. *EPIDENDRUM RIGIDUM* Jacq. Enum. Pl. Carib. 29. 1760; Select. Stirp. Am. 222, t. 134. 1763.

Epidendrum cardiophorum Schltr. in Fedde Rep. Sp. Nov. 9:214. 1911.
Spathbiger rigidus Small, Fl. Miami, p. 55. 1913.

Repent epiphytic herbs up to about 35 cm. long. Stems slender, simple, covered with the amplexicaul leaf-sheaths, sometimes appearing ancipitous. Leaves 3–13 cm. long and 0.4–2 cm. broad, linear to lanceolate-oblong or oblong, obtuse, coriaceous, the apex usually unequally bilobed. Inflorescence a strict raceme up to about 15 cm. long, few- to several-flowered; bracts up to about 15 mm. long, ovate, acute or obtuse, semi-equitant or usually the base surrounding the peduncle, usually with a median keel which is decurrent onto the peduncle; flowers usually greenish. Dorsal sepal 5.5–9 mm. long and 2–3 mm. broad, oblong to lanceolate-ovate, obtuse. Lateral sepals 5–9 mm. long and 2–4 mm. broad, ovate-lanceolate to obovate, oblique, obtuse. Petals 5–9 mm. long and 1.2–2 mm. broad, ovate-lanceolate to obovate, oblique, obtuse. Lip unguiculate; claw adnate to the column; lamina 4–6 mm. long and about as broad, cordate-orbicular, obtuse or obscurely retuse, lateral margins revolute; disc fleshy, with 2 mammillate calluses at the apex of the column.

Florida, Mexico to Panama, the West Indies, tropical and subtropical South America.

CANAL ZONE: near Salamanca Hydrographic Station, Rio Pequení, Dodge, Steyermark & Allen s. n.; between Tumba Vieja and Salamanca, Steyermark & Allen 16749.

A widespread species which is surprisingly constant in characters.

68a. *EPIDENDRUM RIGIDUM* Jacq. var. *angustisegmentum* L. Wms. var. nov.¹

Vegetatively similar to the species. Dorsal sepal 9–10 mm. long and 2–3 mm. broad, lanceolate, acute. Lateral sepals 9–10 mm. long and 2.5–3.5 mm. broad, lanceolate, oblique, acute. Petals 7.5–9 mm. long and 0.5–1 mm. broad, subfiliiform to linear, acute. Lip unguiculate; claw adnate to the column; lamina 5–6 mm. long and 3–3.5 mm. broad, oblong-ovate, obtuse, truncate at the base, fleshy; disc with two mammillate calluses at the apex of the column and with one or more inconspicuous callus ridges.

¹ Sepalum dorsale lanceolatum, acutum. Sepala lateralia lanceolata, obliqua, acuta. Petala subfiliformia vel linearia, acuta. Lamina labelli oblongo-ovata, obtusa, basi truncata, carnosa; discus prope basim bicallosus.

Panama.

BOCAS DEL TORO: epiphyte, Nances Cay Island, Wedel 586; Water Valley, Wedel 851; Water Valley, vicinity of Chiriqui Lagoon, Wedel 1708 (TYPE Herb. Ames).

The variety differs from the species in its narrower floral segments and differently shaped lip.

69. EPIDENDRUM SANCHOI Ames, Sched. Orch. 4:48. 1923; loc. cit. 10:70. 1930.

Repent epiphytic herbs up to about 4 dm. long. Stems small, branched, often profusely so, usually consisting of a principal stem and smaller elongated branches, covered with the verrucose or rugose amplexicaul leaf-sheaths. Leaves 0.6–8 cm. long and 0.1–0.6 cm. broad, linear or linear-oblong, obtuse, apex usually unequally bilobed. Inflorescence of terminal few-flowered racemes; rachis fractiflex. Dorsal sepal 5–8 mm. long and 1.2–2 mm. broad, lanceolate, acute. Lateral sepals 5–8 mm. long and 1.2–2.5 mm. broad, lanceolate, acute. Petals 4.5–7 mm. long and 0.5–1 mm. broad, linear-elliptic or linear, acute. Lip unguiculate; claw adnate to the column; lamina 3.5–5 mm. long and 2–2.5 mm. broad, triangular-cordate or narrowly so, fleshy, the basal auricles usually erect; the disc appearing excavated, provided with a small trilobulate callus at the base.

Costa Rica and Panama.

CHIRIQUI: rain forest, Boquete District, alt. 1800 m., Davidson 114, 348.

70. EPIDENDRUM SCHLECHTERIANUM Ames, Sched. Orch. 7:9, fig. I. 1924.

Nanodes discolor Lindl. in Bot. Reg. 18: t. 1541. 1832, non *Epidendrum discolor* Rich. & Gal.

Epidendrum brevicaule Schltr. in Fedde Rep. Sp. Nov. Beih. 17:30. 1922, non Schltr. 1921.

Epidendrum congestoides Ames & Schweinf. Sched. Orch. 10:61. 1930.

Dwarf, densely caespitose herbs up to 8 cm. tall. Stems short, covered with the equitant bases of the leaves. Leaves 1–3 cm. long and 0.2–1 cm. broad, linear-oblong to oblong-oval, obtuse, approximate, semi-equitant, spreading, fleshy. Inflorescence of 1 to few sessile flowers in the axils of the terminal leaves, shorter than the leaves to slightly exceeding them; flowers large for the plant. Dorsal sepal 8–20 mm. long and 3–4.5 mm. broad, lanceolate to oblanceolate, acute or acuminate. Lateral sepals 8–18 mm. long and 2–4.5 mm. broad, lanceolate to ovate-lanceolate, oblique, acute, serrulate-keeled along the mid-nerve dorsally, connate at the base with the claw of the lip. Petals 8–18 mm. long and 1–2.5 mm. broad, elliptic-linear to linear-lanceolate, entire or denticulate, acute. Lip 8–20 mm. long, long-unguiculate; claw adnate to the column, usually slightly longer than the column; lamina 4–8 mm. long and as broad, suborbicular-reniform to oblong-quadrata, apiculate, lobes more or less erect, fleshy. Clinandrium fimbriate-denticulate.

Mexico to Panama, Jamaica, Surinam, Brazil and Peru.

CANAL ZONE: near Vigia and San Juan, Dodge, Steyermark & Allen 16562; Rio Azote Caballo, 66–70 m., Dodge, Steyermark & Allen 16864; San Juan, Powell 18, 3465.

Fig. 135. *Epidendrum Schlechterianum*

71. *EPIDENDRUM SCHUMANNIANUM* Schltr. in Fedde Rep. Sp. Nov. 9:215. 1911;
Allen in Am. Orch. Soc. Bull. 10:359, figs. 1942.

Tall, caespitose, epiphytic herbs up to a meter or more long. Stems up to about 8 mm. in diameter, leafy above, covered with the maculate or verrucose leaf-sheaths, becoming naked and vernicose with age. Leaves 1.5–9 cm. long and 1–3.5 cm. broad, lanceolate to elliptic-oblong, obtuse or acutish, coriaceous. Inflorescence simple or usually a lax many-flowered panicle. Flowers multicolored and rather pretty. Dorsal sepal 8–12 mm. long and 3.5–4.5 mm. broad, oval to broadly oblanceolate, obtuse or acutish. Lateral sepals 8–12 mm. long and 3.5–5 mm. broad, oblanceolate to oval, obtuse or acute, oblique. Petals 8–15 mm. long and 5.5–8 mm. broad, obovate or obovate-spatulate, obtuse. Lip unguiculate; claw adnate to the basal half of the column; lamina 9–15 mm. long and 7.5–12

mm. broad, 3-lobed; the lateral lobes small, oblong, obtuse, explanate; terminal lobe obovate-cuneate, bilobulate or deeply bifid, anterior margins entire to crenulate; disc provided with 2 small submammillate calluses at the base and with 1-3 longitudinal callus-thickenings.

Costa Rica and Panama.

COCLÉ: hills north of El Valle de Antón, vicinity of La Mesa, alt. 1000 m., Allen 2351, 2386; El Valle, alt. 670 m., Dudak s. n.

72. EPIDENDRUM SCULPTUM Reichb. f. in Bonplandia 2:89. 1854.

Epidendrum colonense Ames, Sched. Orch. 1:14. 1922.

Pendent or repent epiphytic herbs up to about 50 cm. long. Stems simple or branched, densely leaved, covered with the chartaceous leaf-sheaths or becoming naked with age. Leaves 2-4.5 cm. long and 1-1.8 cm. broad, oblong or oblong-lanceolate, obtuse, retuse, coriaceous. Inflorescence with 1-3, usually 2, terminal flowers subtended by spathaceous bracts; flowers green or greenish-yellow. Dorsal sepal 10-14 mm. long and 2.5-3 mm. broad, lanceolate to oblong-lanceolate, obtuse. Lateral sepals 10-15 mm. long and about 3 mm. broad, oblong-lanceolate, oblique, acute. Petals 9-14 mm. long and 2-3 mm. broad, elliptic-linear to narrowly oblanceolate, oblique, obtuse. Lip unguiculate; claw adnate to the column; lamina 9-13 mm. long and 5.5-7 mm. broad, lanceolate-ovate, acute, 3-lobed; lateral lobes small, rounded, reaching to about the middle of the lip; mid-lobe lanceolate; disc provided with two callus-like thickenings at the base on the lateral lobes and with two longitudinal ridges along the median line and reaching to about the middle of the lip.

Possibly Honduras and Costa Rica. Panama, British and Dutch Guiana.

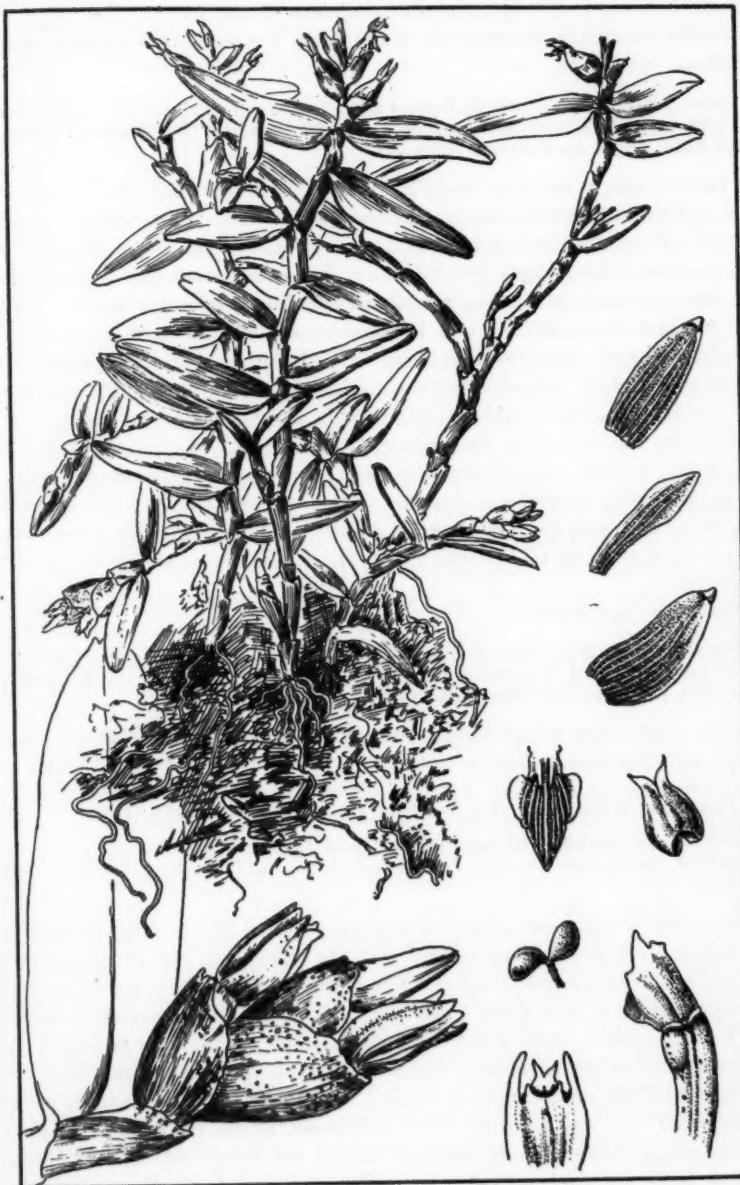
CANAL ZONE: near Vigia and San Juan, Dodge, Steyermark & Allen 16583; Gatún Lake, Powell 116, 3407, 3410; between Fort Clayton and Corozal, Standley 29099. COLÓN: Río Indio de Fato, Pittier 4265.

A specimen from Costa Rica, presumed to be this species, has an entire lip.

73. EPIDENDRUM STROBILIFERUM Reichb. f. in Nederl. Kruidk. Arch. 4:333. 1859

Epidendrum verecundum Schltr. in Fedde Rep. Sp. Nov. Beih. 17:42. 1922.
Spathiger strobiliferus Small, Man. Southeast. Fl. 390. 1933.

Small, repent or caespitose, epiphytic herbs up to about 2 dm. long. Stems slender, simple or branched, covered with amplexicaul leaf-sheaths. Leaves 8-45 mm. long and 2-10 mm. broad, from ligulate to elliptic-linear to linear-lanceolate, obtuse or acute, coriaceous, apex usually unequally bilobed. Inflorescence short, few-flowered, flexuose; bracts 5-8 mm. long, cucullate, obtuse, chartaceous; flowers small, inconspicuous. Dorsal sepal 3.5-5 mm. long and 1.2-1.5 mm. broad, linear-lanceolate, acute. Lateral sepals 3.5-5 mm. long and 1.8-2 mm. broad, ovate-lanceolate, oblique, acute. Petals 3-4.5 mm. long and 0.5-1 mm. broad, linear-oblanceolate, obtuse or acute. Lip 3-3.5 mm. long and 1.5-3 mm. broad, lanceolate-cordate to ovate-cordate, acute, ecallose. Ovary with a small

Fig. 136. *Epidendrum strobiliferum*

(307)

subscerotiform sac at the apex near the attachment of the lip.

Florida, Mexico to Panama, the West Indies, Venezuela, the Guianas, Brazil and Peru.

CANAL ZONE: foothills east of Panamá City, San Juan Range, and San Juan, Powell 209, 350, 3435, 3453; near Summit, Standley 25747. PANAMÁ: Río Tecúmen, north of Chepo Road, alt. 30 m., Hunter & Allen 224.

74. EPIDENDRUM SUBNUTANS Ames & Schweinf. in Sched. Orch. 10:73. 1930.

Caespitose, epiphytic herbs up to about 85 cm. tall. Stems slender, simple, covered with the amplexicaul leaf-sheaths, naked below. Leaves 4.5–18 cm. long and 0.8–4 cm. broad, elliptic-lanceolate to oval or ovate, acuminate or acute. Inflorescence terminal, paniculate, many-flowered; flowers relatively small. Dorsal sepal 5–6 mm. long and 1.2–2 mm. broad, oblanceolate, acute, sometimes papillose dorsally. Lateral sepals 5–6 mm. long and 1.7–2 mm. broad, oblanceolate to elliptic-oblanceolate, oblique, sometimes papillose dorsally. Petals 4–5 mm. long and 0.1–0.5 mm. broad, filiform to narrowly linear-oblanceolate, obtuse. Lip unguiculate; claw adnate to the column; lamina 2.5–3.5 mm. long and 4.5–5.5 mm. broad, 3-lobed, subreniform in outline; lateral lobes explanate, larger than the terminal lobe, dolabriform, margins crenate or undulate; mid-lobe subquadrate, retuse and with erect to spreading lobules; disc provided with a large oval central callus made up of 3 parallel ridges, the middle one extending to the apex of the lip.

Costa Rica and Panama.

CHIRIQUI: Bajo Chorro, Boquete District, alt. 1800 m., Davidson 43, 113; "Chiriquí", Powell 428; vicinity of Bajo Mona and Quebrada Chiquero, alt. 1500 m., Woodson & Schery 535, 541, 554; Bajo Chorro, alt. 1900 m., Woodson & Schery 648.

Very closely allied to *Epidendrum paniculatum* Ruiz & Pavon, of which it may be but a small-flowered variety.

75. EPIDENDRUM TERETIFOLIUM Sw. Nov. Gen. & Sp. Prodr. 121. 1788.

Epidendrum teres Reichb. f. in Bonplandia 3:220. 1855, non Thunb.

Epidendrum teretifolium Sw. var. *Powellianum* Schltr. in Fedde Rep. Sp. Nov. Beih. 17:41. 1922.

Caespitose or subrepent, epiphytic herbs up to about 35 cm. tall. Stems slender, simple, erect or ascending, covered with the amplexicaul leaf-sheaths, even in age. Inflorescence a single flower or a few-flowered fascicle borne on the apex of a peduncle which is up to about 8 cm. long, and subtended by chartaceous sheaths and 1 or 2 terminal leaves which are borne near the apex of the peduncle; the peduncle more or less ancipitous; flowers greenish or yellowish, segments fleshy. Dorsal sepal 8–10 mm. long and about 2 mm. broad, linear-lanceolate, acute. Lateral sepals 8–11 mm. long and 1.5–2 mm. broad, elliptic to lanceolate, slightly oblique, acute. Petals 4–6 mm. long and 1.2–1.5 mm. broad, oblanceolate, obtuse, the apex fleshy and thickened. Lip unguiculate; claw adnate to the basal part of the column; lamina 6–8 mm. long and 1–2 mm. broad, 3-lobed, elliptic; lateral

lobes small, rounded, erect, at about the middle of the lip; terminal lobe with a prominent lamellate callus which is higher than the lobe is broad, acute; disc provided with a small lamellate callus toward the base and a large one on the terminal lobe.

Mexico, Guatemala, Honduras, Nicaragua, Panama, the West Indies and Venezuela.

CHIRIQUI: Palo Alto, alt. 1200–1400 m., Powell 240.

76. EPIDENDRUM TETRACEROS Reichb. f. in Bot. Zeit. 10:733. 1852.

Much-branched epiphytic herbs, probably up to a meter or more long. Stems slender, covered with the scarious leaf-sheath bases when young, becoming naked with age, bearing leaves toward the ends of the stems. Leaves 3–7 cm. long and 0.2–0.8 cm. broad, linear to linear-lanceolate, acute. Inflorescence a few-flowered raceme, about as long as or shorter than the subtending leaves. Flowers with sepals and petals greenish, the lip white with purple-red markings. Dorsal sepal about 12–16 mm. long and 4–5 mm. broad, elliptic-lanceolate, acute or acuminate. Lateral sepals similar to the dorsal but slightly oblique. Petals 12–14 mm. long and 3–5 mm. broad, linear-ob lanceolate, acute. Lip unguiculate; claw adnate to the column; lamina 10–12 mm. long and 11–14 mm. broad, fleshy, suborbicular, undulate-crenate, provided with 2 small lamellate calluses under the apex of the column (hidden by the clinandrium) and a large, thick, central callus made up of 3 or more ridges. Column winged laterally at the apex and with two apical stelidiar arms above the clinandrium.

Costa Rica and Panama.

CHIRIQUI: "Chiriquí", Warscewicz; near El Boquete, Pittier 3115.

77. EPIDENDRUM TRACHYTHECE Schltr. in Fedde Rep. Sp. Nov. 3:249. 1907.

Small, caespitose or repent, epiphytic herbs up to about 25 cm. long. Stems slender, leafy, simple or usually much branched, covered with the verrucose or rugose amplexicaul leaf-sheaths. Leaves 1–4.5 cm. long and 0.3–0.5 cm. broad, ligulate, obtuse, the apex retuse and unequally bilobed. Inflorescence short, a single flower, or usually a few-flowered flexuose raceme exceeded by the subtending leaves; bracts up to about 5 mm. long, chartaceous, cucullate, oblong to ovate. Flowers small, inconspicuous, greenish-yellow to white. Dorsal sepal 3–3.5 mm. long and 1.5–2 mm. broad, oblong to oval, obtuse or acute. Lateral sepals 3–3.5 mm. long and 2.2–3 mm. broad, oblong-ovate to suborbicular, slightly oblique, acute or obtuse. Petals 3–3.2 mm. long and 0.7–0.8 mm. broad, linear-oblong to oblanceolate, acute or obtuse. Lip unguiculate; claw adnate to the lower $\frac{2}{3}$ of the column; lamina 2–2.5 mm. long and 3–3.5 mm. broad, transversely oval to subreniform, often short-apiculate; disc provided with a bilobate submammillate callus near the middle, the lobes sometimes somewhat separated.

Guatemala, Costa Rica and Panama.

CHIRIQUI: Bajo Chorro, Boquete District, alt. 1800 m., Davidson 124.

78. *EPIDENDRUM TRIANGULABIUM* Ames & Schweinf. in Sched. Orch. 10:75 1930.

Small, caespitose or repent, epiphytic herbs up to about 20 cm. long. Stems slender, simple or branched, covered with the loose, keeled, amplexicaul leaf-sheaths, naked with age. Leaves 1.3–2.5 cm. long and 0.5–1.2 cm. broad, elliptic to oval, obtuse, coriaceous, apex obscurely bilobed. Inflorescence a single terminal or lateral flower. Flowers apparently cleistogamous. Dorsal sepal about 12 mm. long and 3 mm. broad, lanceolate, acute. Lateral sepals about 12 mm. long and 3 mm. broad, lanceolate, acute, oblique. Petals about 12 mm. long and 2 mm. broad, elliptic, acute, oblique. Lip unguiculate; claw adnate to the column; lamina about 6 mm. long and 9 mm. broad, sagittate-triangular, the apex of the lateral extensions and the terminal point acute.

Costa Rica and Panama.

COCLE: vicinity of El Valle de Antón, alt. 600–1000 m., *Allen 1245*. *PANAMÁ*: near top of Cerro Campana, alt. 800–1000 m., *Allen 2223*.

We have seen no completely satisfactory material of this species.

79. *EPIDENDRUM WARSZEWICZII* Reichb. f. in Bot. Zeit. 10:732. 1852; in Xenia Orch. 1:69, t. 26. 1854.

Small, erect, epiphytic herbs with relatively large flowers. Stem slender, few-leaved. Leaves (about 12–15 mm. long?) linear-ligulate, obtuse, apex bilobed. Inflorescence reflexed, many-flowered (illustration shows five). Perianth segments oblong, acute (in illustration apparently lanceolate, acute or acuminate); lip dilated in front, minutely denticulate, 3-lobulate (illustration shows: about 30 mm. long and 17 mm. broad, this presumed to be natural size, obovate, obscurely 3-lobed, denticulate margins); disc with 2 erect teeth (calluses) at the base and 3 elevated longitudinal lines.

Costa Rica and Panama according to Warszewicz.

PANAMÁ: "Costa Rica, Veraguas, Chiriquí", Warszewicz.

The collection locality of the single specimen known to exist was given by Reichenbach, in the second publication cited, as we have shown it. The description was taken from the original publication and from the plate cited.

80. *EPIDENDRUM LIVIDUM* Lindl. in Bot. Reg. 24: Misc. p. 51. 1838; Ames, Hub. & Schweinf. Genus Epidendrum in U. S. & Mid. Am. 118. 1936.

Costa Rica, Venezuela and Colombia. Reported from Panama in cultivation.

28. *DIACRIUM* Lindl. ex Benth.

DIACRIUM Lindl. ex Benth. in Jour. Linn. Soc. Lond. 18:312. 1881; Benth. & Hook. Gen. Pl. 3:526. 1883; Pfitzer in Engler & Prantl, Nat. Pflanzenf. II, 6:146. 1888.

Epidendrum subg. *Diacrium* Lindl. in Hook. Jour. Bot. 3:81. 1841.

Caespitose epiphytic or semi-epiphytic herbs. Stems pseudobulbose, solid or hollowed by insect action. Leaves at or near the apex of the pseudobulbs, few.

Fig. 137. *Diacrium bilamellatum*

Inflorescence terminal, racemose, borne at the end of an elongated peduncle, few- to several-flowered. Sepals similar, free, spreading. Petals similar to the sepals. Lip free from the column and spreading, 3-lobed, provided with two horn-like processes toward the base which are hollow and open from the underside of the lip. Column short, footless, produced laterally into wings. Anther terminal, operculate, incumbent, 2-celled, the cells divided by a longitudinal septum; pollinia 4, laterally compressed, each one provided with a granular, viscid appendage.

Diacrium is closely allied to *Epidendrum*, from which it is easily, if superficially, distinguished by the hollow horn-like processes on the lip. A small genus of four or five species.

1. *DIACRIUM BILAMELLATUM* (Reichb. f.) Hemsl. in Godm. & Salvin, Biol. Centr.-Am. Bot. 3:222. 1883.

Epidendrum bilamellatum Reichb. f. in Walp. Ann. 6:345. 1862.
Diacrium bilamellatum var. *Reichenbachianum* Schltr. in Fedde Rep. Sp. Nov. Beih. 17:47, in text. 1922.

Coarse, caespitose, epiphytic herbs up to about 60 cm. tall. Stems swollen, solid or hollowed by insects, cylindric to fusiform, provided with 1-4 leaves at the apex. Leaves 6-20 cm. long and 0.6-2.5 cm. broad, ligulate to ligulate-lanceolate, obtuse, fleshy. Inflorescence a short several-flowered raceme borne near the top of an elongated peduncle; peduncle up to 45 cm. long, provided with amplexicaul, chartaceous sheaths. Flowers pedicellate, one or few open at one time, perhaps often cleistogamous. Dorsal sepal 12-15 mm. long and about 6 mm. broad, oval, acute. Lateral sepals 11-16 mm. long and 5-6 mm. broad, elliptic-oval to lanceolate-ovate, acute. Petals 11-14 mm. long and 7-8 mm. broad, broadly obovate, short-unguiculate, acute. Lip free from the column and spreading; lamina 11-14 mm. long and 4-6 mm. broad, lanceolate-ovate in outline, 3-lobed, the lateral lobes small and often obscure above the middle of the lip, apices rounded; disc provided with two large lamellate horn-like processes near the middle, these processes hollow, 2-4 mm. high.

Guatemala, British Honduras, Costa Rica, Panama and Venezuela.

BOCAS DEL TORO: vicinity of Chiriquí Lagoon, Wedel 2100. CANAL ZONE: Chagres, Bebr; open woods east of Panamá City, Powell 67; Culebra, Pittier 3406. PANAMÁ: swamp between El Jagua Hunting Club on Rio Jagua and El Congor Hill, Hunter & Allen 473; San José and Trapeche Islands, Pearl Islands, Miller 1890, 1909. WITHOUT LOCALITIES: Ames s. n.; Cowell 160; Johnston 703; Killip 3394.

This species is said to have its stems often inhabited by ants. It is a lowland, coastal species.

29. CATTLEYA Lindl.

CATTLEYA Lindl. Collect. Bot. t. 33 & t. 37. 1824.

Epiphytic herbs with thick, fleshy or pseudobulbose stems, 1- to 2-foliate at the apex. Leaves coriaceous or fleshy, most often thick. Inflorescence terminal, usually subtended by a spathaceous bract; raceme simple; flowers often large and showy, usually few. Sepals subequal, free. Petals usually broader than the sepals. Lip sessile, broad, erect, free from or slightly adnate to the column, sides erect and usually enfolding the column. Column long, wingless, often somewhat arcuate; anther terminal, operculate, incumbent, each cell with a longitudinal septum; pollinia 4, parallel, ceraceous, broad, somewhat compressed.

One variety in Panama, about 30 in Central and South America. *Cattleya* is the most widely cultivated of the orchids. It hybridizes easily with *Laelia*, *Brassavola* and *Sophronitis* and the hybrid genera formed by these crosses.



Fig. 138. *Cattleya Skinneri* var. *autumnalis*

1. **CATTLEYA SKINNERI** Batem. var. **AUTUMNALIS** Allen in Ann. Missouri Bot. Gard. 29:345. 1942.

Epiphytic or semi-terrestrial herbs up to 4 dm. tall. Pseudobulbs 15–30 cm. long and 1–3 cm. in diameter, cylindric to fusiform, 2-, rarely 1-, leaved. Inflorescence a simple few-flowered raceme; spathe 5–10 cm. long, pergameneous. Leaves 10–15 cm. long and 3.5–5.5 cm. broad, elliptic to oblong-lanceolate, obtuse, coriaceous. Sepals 3–5 cm. long and 0.8–1.4 cm. broad, elliptic to broadly oblanceolate, acute. Petals 3–5 cm. long and 1–2.5 cm. broad, lanceolate to narrowly ovate or oval, obtuse or acute. Lip 3–4.5 cm. long and 2–3 cm. broad, oval to obovate, retuse, usually darker in color than the sepals and petals, enfolding the column.

Panama.

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PANAMÁ: vicinity of Bejucá, alt. 15 m., Allen 2668; east of city, Powell 16. CANAL ZONE: Cañon Quebrada, Pittier 6828.

The Panamanian variety of a species distributed from Mexico to Costa Rica and the only known *Cattleya* in Panama. Autumn flowering, and the flowers smaller than the species.

30. LAELIA Lindl.

Laelia Lindl. Gen. & Sp. Orch. Pl. 115. 1831; Benth. & Hook. Gen. Pl. 3:533. 1883; L. Wms. in Darwiniana 5:74. 1941.

Schomburgkia Lindl. Sert. Orch. t. 10. 1838.

Epiphytic herbs often with showy flowers and apicitous, terete, solid or hollow pseudobulbs. Sepals subequal, free, spreading, flat or undulate. Petals similar to the sepals, sometimes broader. Lip free from or slightly connate with the column, 3-lobed (or nearly simple), the lateral lobes enfolding the column or more or less explanate; disc smooth or lamellate; column long or short, winged or wingless. Anther operculate, incumbent, each cell divided into two by a septum and with each cell sometimes again divided by a more or less perfect septum; pollinia 8, 4 in each cell of the anther, ovate or compressed laterally, ceraceous.

The genus is to be found rather widely over tropical and subtropical America, where it is often exceedingly abundant. Some species are prized by orchid growers and are useful in hybridization. There are about 50 species in the genus.

- | | |
|--|--------------------------|
| a. Pseudobulbs less than 8 cm. long; sepals and petals plane..... | 1. <i>L. RUBESCENS</i> |
| aa. Pseudobulbs more than 18 cm. long; sepals and petals undulated or twisted..... | 2. <i>L. LUEDDEMANII</i> |

1. *Laelia RUBESCENS* Lindl. in Bot. Reg. 26: Misc. p. 20, t. 41. 1840.

Laelia peduncularis Lindl. loc. cit. 28: Misc. p. 9. 1842.

Caespitose epiphytic herbs up to 60 cm. tall. Pseudobulbs 1.5-7 cm. long and 1.5-4 cm. broad, oval to orbicular, apicitous, 1-, rarely 2-, leaved. Leaves 4-20 cm. long and 2-4.5 cm. broad, elliptic, elliptic-lanceolate to ovate, obtuse, coriaceous. Inflorescence a long-pedunculate, few- to several-flowered raceme, terminal or rarely appearing laterally on undeveloped bulbs; bracts up to 1 cm. long, chartaceous, cucullate; flowers small to fairly large, white, or white with the base of the lip lavender to pink, or lavender throughout. Sepals 2-4.5 cm. long and 0.2-0.7 cm. broad, linear-lanceolate to elliptic, obtuse or acutish. Petals 2-4.5 cm. long and 0.3-1.5 cm. broad, elliptic or lanceolate, obtuse or acute. Lip 1.5-3.5 cm. long and up to 1.5 cm. broad, shorter than the sepals and petals, 3-lobed, provided with several inconspicuous longitudinal ridges; lateral lobes short, rounded and obtuse, enfolding the column; terminal lobe oblong-oval, blunt or retuse.

Mexico, Guatemala, Salvador, Nicaragua, Costa Rica and Panama.

CHIRIQUI: "N. W. corner of Chiriquí, near the Gulf of Dulce," cultivated by Powell 64.

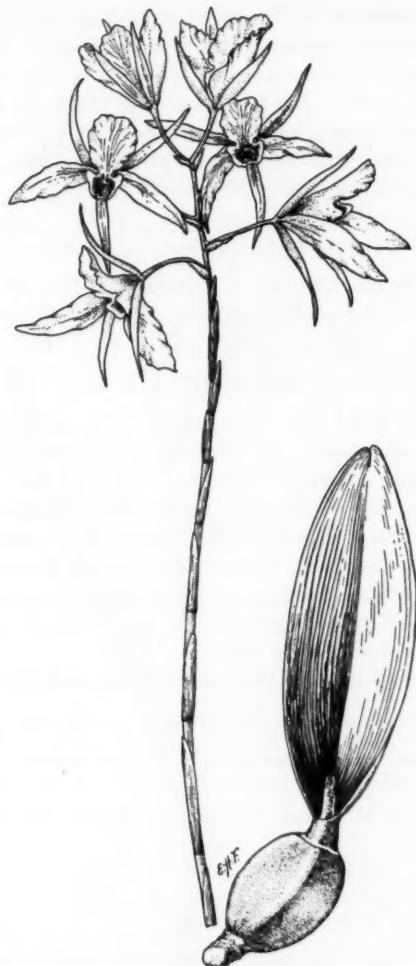


Fig. 139. *Laelia rubescens*
(Flowers of species are normally resupinate)

2. LAELIA LUEDDEMANII (Prill.) L. Wms. in Ann. Missouri Bot. Gard. 27:282.
1940.

Schomburgkia Lueddemani Prill. in Jour. Soc. Imp. Hort. Paris 8:275. 1862; Rolfe in
Bot. Mag. 138: t. 8427. 1912.

Large, caespitose, epiphytic herbs up to a meter or more tall when in flower. Pseudobulbs 18–30 cm. long and 2–3 cm. broad, apparently somewhat ancipitous, largest toward the top, bifoliate. Leaves 20–35 cm. long and 4–6.5 cm. broad, lanceolate or elliptic, obtuse, coriaceous. Inflorescence a long-pedunculate, several-

to many-flowered raceme up to 75 cm. or more long; bracts up to 6 cm. long, linear to linear-lanceolate; flowers brown or maroon with a purple lip, medium-sized, long-pedunculate. Sepals and petals 2.5–5.5 cm. long, undulated, linear or spatulate, obtuse or acutish. Lip 1.3–2 cm. long and 1–1.3 cm. broad, 3-lobed, with 3 or more inconspicuous longitudinal carinae; lateral lobes rounded, obtuse, appressed to the column; terminal lobe orbicular-ovate, acute, recurved.

Costa Rica, Panama and possibly Venezuela.

CHIRIQUI: near city of David, at sea-level, Powell 170. COCLÉ: mountains beyond La Pintada, alt. 400–600 m., Hunter & Allen 509.

Laelia tibicinis (Batem.) L. Wms., in Darwiniana 5:77. 1941, has been reported from Panama but we have seen no specimens nor authentic record of it from the country.

31. BRASSAVOLA R. Br.

BRASSAVOLA R. Br. in Aiton, Hort. Kew., ed. 2, 5:216. 1813.

Epiphytic herbs with more or less thickened, 1- to 2-leaved stems. Sepals free, equal, spreading, linear or linear-lanceolate, often long and acuminate. Petals similar to the sepals. Lip sessile, erect, more or less enfolding the column, base short or long and narrow, expanded into a broad lamina which is plane, rarely concave or somewhat cucullate. Column erect, usually shorter than the claw of the lip, more or less bialate, footless; anther operculate, incumbent, each cell with an obscure longitudinal septum; pollinia 8, 4 in each cell of the anther, broadly ovate and laterally compressed, ceraceous.

A genus of about 15 species. Flowers often large and showy.

- | | |
|--|---------------|
| a. Flowering scapes subtended by a leaf, often as long as or longer than the leaf; inflorescence usually several-flowered..... | 1. B. NODOSA |
| aa. Flowering scape from the rhizome, not subtended by a leaf; inflorescence usually 1-flowered..... | 2. B. ACAULIS |
| 1. BRASSAVOLA NODOSA (L.) Lindl. Gen. & Sp. Orch. Pl. 114. 1831; in Bot. Reg. 17: t. 1465. 1832. | |

Epidendrum nodosum L. Sp. Pl. 953. 1753.

Brassavola venosa Lindl. in Bot. Reg. 26: Misc. p. 20. 1840.

Brassavola scaposa Schltr. in Orchis 13:77. 1919.

Erect or pendent epiphytic herbs up to about 40 cm. long, usually less; flowers often showy. Stems or pseudobulbs 2–12 cm. long, cylindric, slender, 0.2–0.5 cm. in diameter, usually covered with a pergameneous sheath, 1-leaved. Leaves 6–23 cm. long and 0.3–2.5 cm. broad, either terete or flattened, if flattened then usually linear-elliptic, acute. Inflorescence borne at the end of the stem, either shorter or longer than the subtending leaf, few- to several-flowered. Sepals 4–9 cm. long and 0.2–0.4 cm. broad, linear, acute. Petals 4–9 cm. long, 0.05–0.2 cm. broad, filiform to linear, acute. Lip 4.5–8 cm. long and 2.5–4 cm. broad; base unguiculate and cucullate, enfolding the column; anterior portion broad, cordate to orbicular-cordate, acuminate or at least apiculate, having several prominent veins.

Fig. 140. *Brassavola nodosa*

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Mexico to Panama, the West Indies and northern South America. Common at lower elevations in Central America.

BOCAS DEL TORO: Shepherd Hill, Wedel 2; vicinity of Chiriquí Lagoon, Wedel 1413, 1995, 2644. CANAL ZONE: vicinity of Fort Sherman, Allen 2844; France Field, Powell 25; between Tumba Vieja and Salamanca, Steyermark & Allen 16753. PANAMÁ: vicinity of La Palma, Pittier 6689; Trapiche Island, Allen 2608; Taboga Island, Killip 3181; Hacienda La Joya, Dodge et al 16903; Isla Taboga, Woodson, Allen & Seibert 1487; Cativo, Lee s.n. VERAGUAS: Cerro Pena de Cristo, alt. 1500 m., Powell 422.

2. *BRASSAVOLA ACAULIS* Lindl. in Paxt. Flow. Gard. 2:152, fig. 216. 1851-52.

Brassavola lineata Hook. in Bot. Mag. 79: t. 4734. 1853.

Pendent epiphytic herbs up to about 80 cm. long. Stems 2-7 cm. long, 0.2-0.5 cm. in diameter, cylindrical, unifoliate. Leaves 40-80 cm. long, 0.3-2 cm. in diameter, terete, fleshy. Inflorescence borne from the rhizome on short peduncles (stems?), 1-, rarely 2-, flowered, much shorter than the leaves. Sepals and petals 7-8 cm. long, 0.3-0.6 cm. broad, linear, acute. Lip 5.5-6.5 cm. long and 2.5-3.5 cm. broad; base unguiculate, cucullate, enfolding the column; anterior part orbicular to orbicular-cordate, acute or acuminate, prominently veined.

Panama, reported also from Costa Rica and Guatemala.

CHIRIQUI: "province of Chiriquí," alt. 1200 m., Powell 102; "Chiriquí province," Svirba s.n.; Boquete District, alt. 1200 m., Davidson 683.

32. *SCAPHYGLOTTIS* Poepp. & Endl.

SCAPHYGLOTTIS Poepp. & Endl. Nov. Gen. & Sp. 1:58. 1835.

Cladobium Lindl. Nat. Syst. Bot. 446. 1836 (or 1835?).

Hexadesmia Brongn. in Ann. Sci. Nat. Bot. II, 17:44. 1842.

Caespitose or repent epiphytic herbs. Stems indurated or pseudobulbose, simply branched, or fascicularly branched (superimposed) above. Leaves 1-3 from the apex of the segments of the stem or pseudobulbs, thin and grass-like to coriaceous or fleshy and terete. Inflorescence a fascicle or a raceme, terminal on the growths or segments of the stem. Sepals subequal, erect. Petals similar to the sepals but usually smaller. Lip articulated from the tip of the column-foot or subarticulated, straight, geniculate, reflexed or recurved, clawed or clawless, entire or 3-lobed, often emarginate. Column short, wingless or winged or auriculate, produced into a more or less distinct foot at the base; anther terminal, operculate, incumbent, the loculae provided with longitudinal septae; pollinia 4 or 6, if 6 then all of equal size or two smaller than the others, ceraceous, laterally compressed (at least 4 of each set compressed).

A difficult but interesting genus of some 40 or 50 species. The generic name *Scaphyglottis* should, in all probability, be substituted by *Cladobium* Lindl. The original generic description of *Scaphyglottis* obviously applies more to *Scaphyglottis parviflora* Poepp. & Endl. than to any of the other component species. Of the species described in the original publication most are *Maxillaria*, and the generic description applies best to those species which belong to the genus *Maxillaria*.

- a. Inflorescence about as long as or longer than the subtending leaves..... 1. *S. MICRANTHA*
 aa. Inflorescence much shorter than the subtending leaves, commonly less than half as long.
 b. Lip with short, acute, dentiform lateral lobes originating about the middle of the lip..... 12. *S. BILINEATA*
 bb. Lip without short, acute, dentiform lateral lobes.
 c. Column provided with stelidiar arms or teeth near the apex or near the middle.
 d. Stelidiar arms near the apex of the column.
 e. Lip entire or at most obscurely trilobulate..... 5. *S. LAEVILABIA*
 ee. Lip trilobate, the lateral lobes distinct..... 7. *S. AMETHYSTINA*
 dd. Stelidiar arms near the middle of the column..... 9. *S. MESOCOPIS*
 cc. Column lacking stelidiar arms or teeth near the apex or near the middle, sometimes auriculate.
 d. Lip widest at the middle or toward the base.
 e. Leaves about five times longer than broad, linear-elliptic to elliptic to oblanceolate..... 3. *S. LINDENIANA*
 ee. Leaves at least ten times longer than broad, linear to linear-lanceolate.
 f. Lip rhombic-lanceolate, broadest below the middle..... 11. *S. TENELLA*
 ff. Lip obovate to oblong, broadest across the auriculate lobes near the middle..... 10. *S. MINUTIFLORA*
 dd. Lip widest above the middle, usually near the apex.
 e. Leaves relatively short and broad, mostly less than 6 cm. long..... 4. *S. CUNEATA*
 ee. Leaves relatively long and narrow, grass-like, mostly more than 6 cm. long (if less, then only 1-2 mm. broad).
 f. Lip 3-lobed and with the lobes about equal in length..... 6. *S. LONGICAULIS*
 ff. Lip simple or obscurely 3-lobed, if lobed then the lateral lobes shorter than the mid-lobe.
 g. Lip pandurate or subpandurate, terminal lobe broad, rounded and apiculate..... 2. *S. ACOSTAEI*
 gg. Lip not pandurate nor subpandurate, terminal lobe retuse..... 8. *S. BEHRII*

1. *SCAPHYGLOTTIS MICRANTHA* (Lindl.) Ames & Correll in Bot. Mus. Leafl. Harv. Univ. 10:85. 1942.

Hexadesmia micrantha Lindl. in Bot. Reg. 30: Misc. 2. 1844; Reichb. f. Xenia Orch. 1:70, t. 59, figs. III, 6-10. 1856.

Small, caespitose, epiphytic herbs up to about 20 cm. tall. Stems pseudo-bulbose, fusiform, stipitate, simple or rarely superimposed, 1- or usually 2-leaved at the apex. Leaves 3-12 cm. long and 0.15-0.5 cm. broad, linear, obtuse, usually bilobed at the apex. Inflorescence a terminal, slender, few- to many-flowered raceme about as long as or exceeding the leaves in length; flowers small. Dorsal sepal about 1.5 mm. long and 0.75 mm. broad, oval, acute. Lateral sepals 1.5-2 mm. long and 1-1.5 mm. broad, ovate, acute. Petals 1.5-2 mm. long and about 1 mm. broad, oval or ovate, obtuse. Lip 1.2-2 mm. long and 1.5-2.5 mm. broad, subreniform, trilobate,—in natural position the lateral lobes erect and surrounding the column and the terminal lobe deflexed.

Guatemala, Salvador, Honduras, Nicaragua, Costa Rica and Panama.

"VERAGUAS and CHIRIQUI": Warscewicz.

The smallest-flowered species of the genus.

2. SCAPHYGLOTTIS ACOSTAEI (Schltr.) C. Schweinf. in Bot. Mus. Leafl. Harv. Univ. 10:27. 1941.

Hexadesmia Powellii Schltr. in Fedde Rep. Sp. Nov. Beih. 17:27. 1922, non *Scaphyglottis Powellii* Schltr.

Hexadesmia Acostaei Schltr. loc. cit. 19:293. 1923.

Small, slender, densely caespitose, epiphytic herbs up to 30 cm. tall. Pseudobulbs 2.5–12 cm. long and 0.1–0.6 cm. in diameter, the upper part swollen and fusiform, the lower part forming a slender stipe, 1- or usually 2-leaved. Leaves 5–14 cm. long and 0.1–0.3 cm. broad, linear, obtuse, the apex usually bilobed. Inflorescence a short, terminal, few-flowered raceme, much exceeded by the leaves. Flowers small, usually white with a dark lip. Sepals 3–4 mm. long and 1.4–1.8 mm. broad, lanceolate to ovate-lanceolate, acuminate. Petals 3–4 mm. long and 1.4–2 mm. broad, lanceolate or lanceolate-oblong, acute. Lip 3–4 mm. long and 2.5–4 mm. broad, oblong or oblong-subquadrate, pandurate, acute or retuse and apiculate.

Costa Rica and Panama.

CHIRIQUI: Volcán de Chiriquí, alt. 2100 m., Davidson 867; slope of Cerro de la Horqueta, alt. 1200–1700 m., Maxon 5399; alt. 1500 m., Powell 225.

3. SCAPHYGLOTTIS LINDENIANA (Rich. & Gal.) L. Wms. in Ann. Missouri Bot. Gard. 28:423. 1941.

Hexadesmia fasciculata Brongn. in Ann. Sci. Nat. Bot. II, 17:45. 1842, non *Scaphyglottis fasciculata* Hook.

Hexadesmia Lindeniana Rich. & Gal. in Ann. Sci. Nat. Bot. III, 3:23. 1845.

Hexadesmia pacbybulbon Schltr. in Fedde Rep. Sp. Nov. Beih. 17:26. 1922.

Small to large and coarse epiphytic herbs up to about 50 cm. tall. Stems usually stipitate below, swollen into an ellipsoidal or fusiform pseudobulb above, bifoliate. Leaves 5–25 cm. long and 1.5–5 cm. broad, linear-elliptic to elliptic to lanceolate to oblanceolate, acute, coriaceous. Inflorescence a fascicle of flowers borne at the apex of the pseudobulb. Dorsal sepal 7–11 mm. long and 1.5–2 mm. broad, elliptic, acute. Lateral sepals 7–11 mm. long and 2–3 mm. broad, lanceolate, arcuate, acute. Petals 6–10 mm. long and 1.5–3 mm. broad, elliptic-lanceolate, acute. Lip 6.5–10 mm. long and 2.5–4.5 mm. broad, oblanceolate to narrowly obovate, obscurely 3-lobed, obtuse, apiculate.

Mexico, Guatemala, Costa Rica and Panama.

CHIRIQUI: "Province of Chiriquí," alt. 1500 m., Powell 229, 3149. COCLÉ: hills north of El Valle de Antón, alt. 800–1000 m., Allen 2291; mountains beyond La Pintada, alt. 400–600 m., Hunter & Allen 601.

Scaphyglottis falcata C. Schweinf. is possibly only a somewhat larger-flowered form of this variable species.

4. SCAPHYGLOTTIS CUNEATA Schltr. in Beih. Bot. Centralbl. 36, Abt. 2:398. 1918.

Scaphyglottis prolifera (R. Br.) Cogn. and other authors as to plants, not according to name-bringing synonym.

Tetragametus gracilis Schltr. loc. cit. 400.

Scaphyglottis Wercklei Schltr. in Fedde Rep. Sp. Nov. Beih. 19:28. 1923.

Scaphyglottis gracilis Schltr. loc. cit.

Isocbilus prolifera Lindl. ex C. Schweinf. in Bot. Mus. Leafl. Harv. Univ. 11:181. 1944,
non R. Br.

Small, caespitose or repent, epiphytic herbs up to about 25 cm. long. Stems pseudobulbose, usually superimposed; pseudobulbs slender and cylindric to narrowly fusiform, usually bifoliate at the top of each segment of the growth. Leaves 1–6 cm. long and 0.1–0.7 cm. broad, linear or ligulate to elliptic-oblong, obtuse, usually retuse. Inflorescence a single flower or a few-flowered fascicle borne at the apex of the segments of the stem. Dorsal sepal 3.5–4.5 mm. long and 1.2–1.5 mm. broad, elliptic to elliptic-oval, acute, cucullate. Lateral sepals 4–5 mm. long and 1.5–2.5 mm. broad, linear-oblong, oblique, acute, forming an inconspicuous mentum at the base. Petals 3.5–5 mm. long and 0.5–0.6 mm. broad, linear to linear-ligulate, obtuse or acute, slightly oblique. Lip 4–6 mm. long and 2.5–4 mm. broad toward the apex, unguiculate, cuneate-flabellate, the apical part semi-orbicular, obtuse, entire or trilobate; disc with a small flabellate or bipartite callus toward the apex of the claw or rarely ecallous. Column without stelidiar arms.

Guatemala, British Honduras, Honduras, Nicaragua, Costa Rica and Panama, the West Indies and in South America to Brazil and Bolivia.

CANAL ZONE: near Río Medio, Miller 1747; San Juan Range, Powell 349; hills north of Frijoles, Standley 27668. COCLÉ: vicinity of El Valle de Antón, alt. 600–1000 m., Allen 1248.

5. *SCAPHYGLOTTIS LAEVILABIA* Ames in Proc. Biol. Soc. Wash. 34:154. 1921, as
S. laevilabium.

Similar to *Scaphyglottis cuneata* except the disc of the lip always ecallous and the column with two small stelidiar arms about opposite the stigmatic cavity.

Panama.

PANAMÁ: Juan Diaz, alt. 50 m., Killip 3113; foothills east of Panamá City, Powell 211.

6. *SCAPHYGLOTTIS LONGICAULIS* S. Wats. in Proc. Am. Acad. 23:286. 1888.

Scaphyglottis unguiculata Schltr. in Fedde Rep. Sp. Nov. 12:206. 1913.

Slender, caespitose, epiphytic herbs up to about 30 cm. tall. Stems slender, the pseudobulbs cylindric, simple or rarely superimposed, bearing 1 or 2 leaves at the summit of the segments. Leaves 4–16 cm. long and 0.1–0.3 cm. broad, linear. Inflorescence one-flowered, or a few-flowered fascicle at the apex of the stem or of segments of the stem. Dorsal sepal 5–7 mm. long and about 1.5 mm. broad, linear-oblong to linear-ob lanceolate, acute, somewhat cucullate. Lateral sepals 5.5–7 mm. long and 1.5–2 mm. broad, linear-oblong, acute, forming a distinct mentum at the base. Petals 5–7 mm. long and about 0.7–1 mm. broad, linear-ob lanceolate, obtuse or acute. Lip 5–7 mm. long and 3–4 mm. broad near the apex, unguiculate, cuneate-flabellate, trilobate at the apex; disc ecallous. Column sometimes with lateral teeth at the apex.

Guatemala, Honduras, Costa Rica, Panama and Colombia.

CANAL ZONE: Barro Colorado Island, Kenoyer 251; hills east of Panamá City, Powell 105, 3392; hills north of Frijoles, Standley 27064; Rio Indio, Steyermark & Allen 17442. COLÓN: Loma de la Gloria, Pittier 4090. DARIÉN: vicinity of El Real, alt. 15 m., Allen 944.

7. *SCAPHYGLOTTIS AMETHYSTINA* (Reichb. f.) Schltr. in Beih. Bot. Centralbl. 36, Abt. 2:456. 1918.

Ponera amethystina Reichb. f. in Saunders Ref. Bot. 2: t. 93. 1869.
Scaphyglottis brachiatia Schltr. in Fedde Rep. Sp. Nov. 9:432. 1911.

Caespitose epiphytic herbs up to about 25 cm. tall. Stems simple or superimposed, segments cylindric to fusiform, often distinctly stipitate, bearing 1 or usually 2 leaves at the apex of each segment. Leaves 3–12 cm. long and 0.4–1 cm. broad, linear, linear-lanceolate to elliptic, obtuse, the apex retuse and unequally bilobed. Inflorescence a few-flowered fascicle borne at the apex of the segments. Dorsal sepal 4.5–6 mm. long and about 1.5 mm. broad, elliptic to oblanceolate, acute, cucullate. Lateral sepals 5–7.5 mm. long and 1.5–2 mm. broad, linear-oblong to lanceolate, acute, forming a short mentum at the base. Petals 4.5–5 mm. long and 0.8–1.2 mm. broad, linear-oblong and unguiculate to oblanceolate, acute. Lip 6–8 mm. long and 3–5 mm. broad, cuneate, obovate, 3-lobed, the lateral lobes large, rounded, situated above the middle of the lip; mid-lobe subquadrate, obtuse, rarely emarginate, exceeding the lateral lobes. Column with 2 stelidiar arms near the apex.

Costa Rica and Panama.

CANAL ZONE: Chagres River, sea-level, Powell 358. CHIRIQUI: vicinity of San Felix, alt. 0–120 m., Pittier 5193.

8. *SCAPHYGLOTTIS BEHRII* (Reichb. f.) Benth. & Hook. ex Hemsl. in Godm. & Salvin, Biol. Centr.-Am. Bot. 3:219. 1883; C. Schweinf. in Bot. Mus. Leafl. Harv. Univ. 7:186. 1939.

Ponera Bebbii Reichb. f. in Bonplandia 3:220. 1855.

Ponera albida Reichb. f. in Beitr. Orch. Centr.-Am. 103. 1866.

Scaphyglottis pauciflora Schltr. in Fedde Rep. Sp. Nov. 3:47. 1906.

Scaphyglottis albida Schltr. in Beih. Bot. Centralbl. 36, Abt. 2:456. 1918.

Caespitose, epiphytic or pendent herbs up to about 45 cm. long. Stems simple or superimposed; segments cylindric to narrowly elliptic or narrowly fusiform, 1-leaved or usually 2-leaved at the apex, at least the lower segment stipitate. Leaves 5–26 cm. long and 0.15–0.45 cm. broad, linear, obtuse, obscurely bilobed at the apex. Inflorescence a single flower or a few-flowered fascicle or one or more much abbreviated few-flowered racemes borne at the apex of the segments of the stem. Dorsal sepal 3–4 mm. long and 1–1.5 mm. broad, elliptic-oblong to elliptic-oval, obtuse, cucullate. Lateral sepals 3.5–4.5 mm. long and 1.2–2 mm. broad, linear-oblong to oblong, acute. Petals 3–4 mm. long and 0.5–1 mm. broad, linear to linear-lanceolate, obtuse, more or less unguiculate. Lip 3.5–5 mm. long and 2–3.5 mm. broad, narrowly obovate, unguiculate, entire to obscurely 3-lobed, obtuse and rarely shallowly retuse. Column with a narrow wing.

Guatemala, British Honduras, Honduras, Nicaragua, Costa Rica, Panama and Colombia.

CANAL ZONE: Chagres, *Behr*; near Gatún, *Hayes*; hills east of Panamá City, Juan Díaz Range, San Juan Range, La Pita, McComber Hill, Frijoles, Juan Díaz, *Powell* 126, 359, 363, 367, 369, 373, 374, 378, 3506; Barro Colorado Island, *Woodworth & Vestal* 592. CHIRIQUI: Lino Hill, *Powell* 385. PANAMÁ: Rio Tecúmen, *Hunter & Allen* 229. VERAGUAS: Bahía Honda, *Taylor* 1507.

It is possible that the historical type of *Scaphyglottis Bebrii* is not the species commonly interpreted as such. We have not seen the original specimen collected by Behr. A record from the Reichenbach herbarium (not from the type) does not match too well.

9. **SCAPHYGLOTTIS MESOCOPIS** (Endr. & Reichb. f.) Benth. & Hook. ex Hemsl.
in Biol. Centr.-Am. Bot. 3:220. 1883.

Ponera mesocopis Endres & Reichb. f. *Xenia Orch.* 2:222, t. 200. 1874.
Scaphyglottis Powellii Schltr. in Fedde Rep. Sp. Nov. Beih. 17:28. 1922.

Caespitose, erect or repent, epiphytic herbs up to about 50 cm. long. Stems pseudobulbose, cylindric or usually fusiform, commonly stipitate; segments superimposed, 1- to 2-leaved at the apex, the lower segment often bearing a fascicle of stems at its apex. Leaves 3-17 cm. long and 0.2-0.7 cm. broad, linear, obtuse, usually bilobate at the apex. Inflorescence a few-flowered fascicle or a much-abbreviated raceme borne at the apex of the segments of the stem. Dorsal sepal 5.5-7 mm. long and 1.8-2.5 mm. broad, elliptic to elliptic-oblong, acute. Lateral sepals 6-8 mm. long and 1.8-2.5 mm. broad, linear-oblong to lanceolate-oblong, acute or obtuse, slightly arcuate, forming a short mentum at the base. Petals 5-7 mm. long and 1.4-2 mm. broad, linear-oblong to elliptic-lanceolate, acute or obtuse, short-unguiculate. Lip 7-10 mm. long and 3.5-4.5 mm. broad, oblong-subpandurate, usually broadest near the apex, cuneate to the base and short-unguiculate, obtuse and emarginate, obscurely denticulate; disc with one or more of the median lines raised and papillose. Column with two stelidiar arms originating at about the middle.

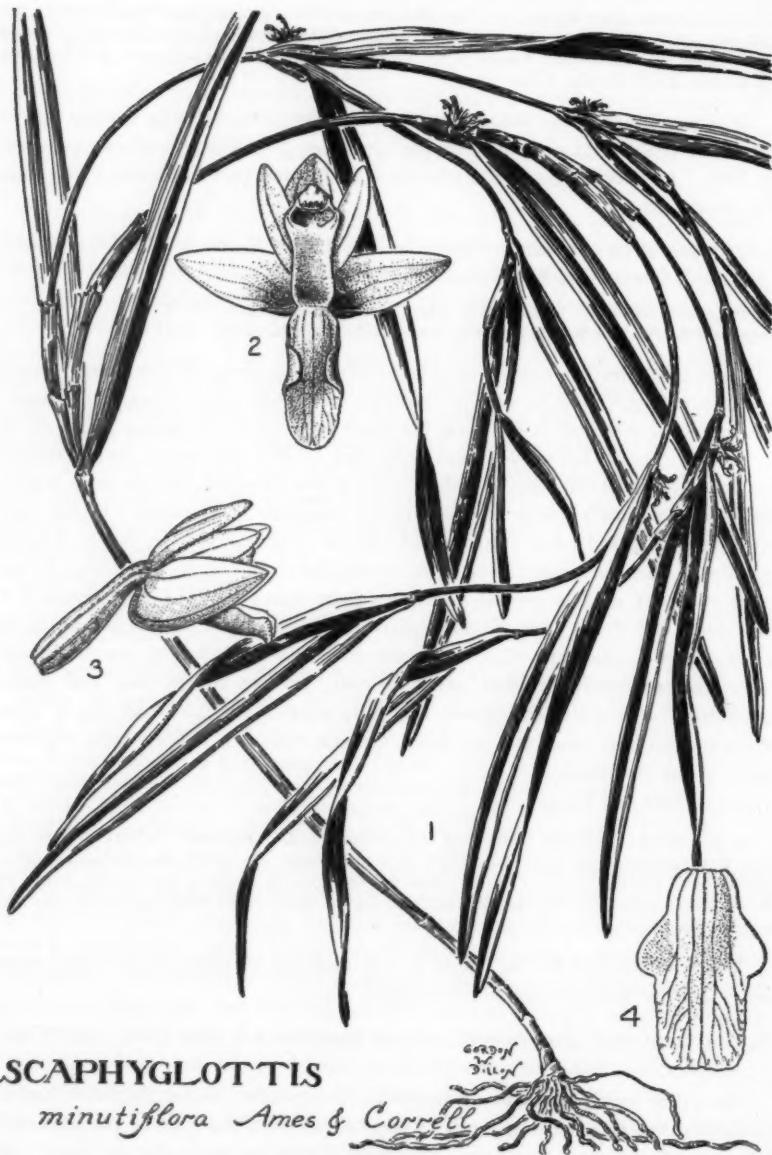
Costa Rica and Panama.

CANAL ZONE: hills east of Panamá City, *Powell* 134. CHIRIQUI: vicinity of Boquete, near Río Caldera, alt. 1300 m., *Allen* 2282; Boquete, alt. 1200 m., *Davidson* 1283; "Province of Chiriquí," alt. 1000 m., *Powell* 134. COCLÉ: vicinity of La Mesa north of El Valle de Antón, alt. 1000 m., *Allen* 2316; region north of El Valle de Antón, alt. 800 m., *Allen* 2926.

The Powell record for the Canal Zone is doubtless in error, for the same number is used for the specimen from Chiriquí.

10. **SCAPHYGLOTTIS MINUTIFLORA** Ames & Correll in Bot. Mus. Leafl. Harv. Univ. 10:83, t. 9. 1942.

Caespitose epiphytic herbs up to about 75 cm. tall. Stems slender, cylindric to slightly fusiform, superimposed, 1- to 2-leaved from the apex of the segments. Leaves 5-18 cm. long and 0.3-1 cm. broad, linear, acute or obtuse, retuse and unequally bilobed at the apex. Inflorescence a few-flowered fascicle, borne at the apex of segments of the stem. Dorsal sepal about 2.4 mm. long and 1.3 mm.

**SCAPHYGLOTTIS***minutiflora* Ames & CorrellFig. 141. *Scaphyglottis minutiflora*

(324)

broad, oval, acute. Lateral sepals about 2.5 mm. long and 1.4 mm. broad, elliptic-oblong, acute, forming an inconspicuous mentum at the base. Petals about 2.2 mm. long and 0.6 mm. broad, narrowly elliptic-oblong, acute or obtuse. Lip 2.5–4 mm. long and 1.5–2.5 mm. broad, obovate to oblong, obtuse or obscurely retuse, provided with small, semi-orbicular, auriculate lobes near the middle.

Guatemala, British Honduras and Panama.

COCLÉ: hills north of El Valle de Antón, alt. 800–1000 m., Allen 2258.

It is possible that the Panamanian material is different from the Guatemalan type.

11. *SCAPHYGLOTTIS TENELLA* L. Wms. in Ann. Missouri Bot. Gard. 28:423, t. 24. 1941.

Caespitose, erect or spreading, epiphytic herbs up to about 50 cm. long. Stems slender, cylindric or becoming swollen and fusiform above, simple, bifoliate at the apex. Leaves 20–23 cm. long and 0.7–1.6 cm. broad, linear to linear-lanceolate, acute, the apex minutely bilobed. Inflorescence a 1- to few-flowered fascicle at the apex of the stem. Dorsal sepal 8–9 mm. long and 3–4 mm. broad, lanceolate, acute. Lateral sepals 8–9 mm. long and 3–4 mm. broad, lanceolate, acute. Petals 8–9 mm. long and 3–3.5 mm. broad, oblong-lanceolate, acute or obtuse. Lip 8–9 mm. long and 4–5 mm. broad, rhombic-lanceolate but somewhat constricted above the middle, fleshy.

Panama.

COCLÉ: hills north of El Valle de Antón, alt. 800–1000 m., Allen 2276.

12. *SCAPHYGLOTTIS BILINEATA* (Reichb. f.) Schltr. in Beih. Bot. Centralbl. 36, Abt. 2:456. 1918.

Ponera bilineata Reichb. f. Beitr. Orch. Centr.-Am. 88. 1866.

Erect or spreading, caespitose, epiphytic herbs up to about 30 cm. long. Stems slender, simple or superimposed, cylindric, 1- to 2-foliate at the apex of the segments. Leaves 6–9 cm. long and 0.7–1.1 cm. broad, ligulate to linear-lanceolate, obtuse. Inflorescence a 1- to few-flowered fascicle borne at the apex of the segments. Dorsal sepal about 7 mm. long and 2 mm. broad, elliptic or oblanceolate, obtuse. Lateral sepals about 8 mm. long and 2.5 mm. broad, lanceolate-oblong, slightly arcuate, acute. Petals about 7 mm. long and 0.8 mm. broad, linear, obtuse. Lip about 9 mm. long and 3.5 mm. broad, cuneate-unguiculate to the base, 3-lobed; the lateral lobes originating above the middle, dentiform; the mid-lobe suborbicular-flabellate, slightly retuse; disc fleshy, especially the basal portion, with the median line callus-thickened toward the apex. Column auriculate at the apex.

Costa Rica and Panama.

CANAL ZONE: Quebrada Lopez, alt. 30 m., Allen 2139. COCLÉ: hills north of El Valle de Antón, alt. 800–1000 m., Allen 2263.

May be expected to be more variable than the description indicates.

Fig. 142. *Scaphyglottis tenella*

(326)

OBSCURE SPECIES

SCAPHYGLOTTIS DOLICHOHYLLA Schltr. in Fedde Rep. Sp. Nov. Beih. 17:28. 1922.

Panama.

This species is based on Powell 126 of which I have seen two specimens. One of these is *Scaphyglottis Bebrii*, while the other is very similar but recalls in some respects Schlechter's analysis of *S. dolichophylla*.

33. PLATYGLOTTIS L. Wms.

PLATYGLOTTIS L. Wms. in Ann. Missouri Bot. Gard. 29:345, t. 34. 1942.

Caespitose, epiphytic herbs from a very short rhizome. Stems slender, non-pseudobulbose, indurated, simple. Leaves alternate, distichous, coriaceous, plane, deciduous; leaf-sheaths tightly enfolding the stem. Inflorescence terminal (or subterminal?), racemose. Sepals subequal; dorsal sepal free; lateral sepals adnate to the short column-foot at their bases and with it forming an inconspicuous mentum. Petals similar to the sepals or broader. Lip articulated to the apex of the column-foot; lamina broadly ligulate, entire. Column short, clavellate, wingless, produced into a short foot at the base; anther terminal, operculate, incumbent, 6-loculate; pollinia 6, equal, 4 basal and laterally compressed in one series, 2 terminal in a second laterally compressed series, ceraceous.

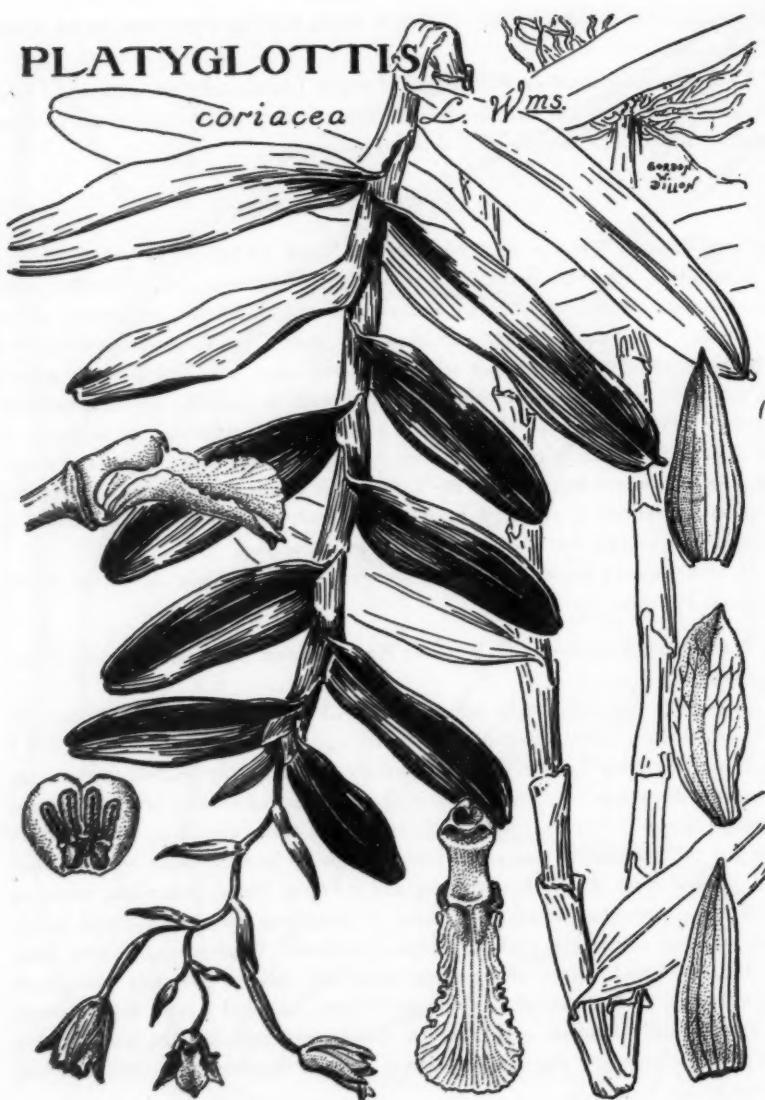
A single species known only from the vicinity of El Valle de Antón, Coclé Province, Panama.

1. **PLATYGLOTTIS CORIACEA** L. Wms. in Ann. Missouri Bot. Gard. 29:347, t. 34. 1942.

Epiphytic, caespitose herbs up to about 4.5 dm. tall. Stems 5-8 mm. in diameter, slender, leafy, becoming naked with age. Leaves 2.5-6 cm. long, 1-1.5 cm. broad, narrowly ligulate, obtuse, obscurely and unequally bilobed at the apex, coriaceous, distichous. Inflorescence a short, few-flowered raceme, terminal or sub-terminal; bracts 7-20 mm. long, elliptic-lanceolate, acute, cucullate; flowers rather large for the tribe, sepals and petals lavender, the lip lavender with greenish margins. Dorsal sepal about 10 mm. long and 3.5 mm. broad, lanceolate, acute or acuminate, 5-nerved. Lateral sepals about 10 mm. long and 3 mm. broad, lanceolate, acute or acuminate, slightly oblique, 5-nerved. Petals about 10 mm. long and 3.5 mm. broad, elliptic-ob lanceolate, somewhat oblique, obscurely constricted near the apex, 5- to 7-nerved. Lip about 10 mm. long and 5 mm. broad toward the apex, broadly ligulate, subpandurate, entire, apex rounded, the margins thin and plicated laterally; disc fleshy, with a pair of inconspicuous, subumbonate calluses at the base.

Panama.

COCLÉ: north of El Valle de Antón, alt. about 1000 m., Allen 2936.

Fig. 143. *Scaphyglottis coriacea*

(328)

34. ISOCHILUS R. Br.

Isochilus R. Br. in Ait. Hort. Kew. ed. 2, 5:209. 1813; Correll in Bot. Mus.

Leafl. Harv. Univ. 10:1. 1941.

Caespitose, epiphytic herbs with slender stems and distichous leaves. Inflorescence a terminal, often unilateral raceme. Sepals subequal, free or connate into a short tube at the base, sometimes more or less subsaccate at the base. Petals about as long as the sepals. Lip subequal to the petals, simple, adnate to the base of the column or column-foot, often semiterete, wingless; column-foot very short and inconspicuous; pollinia 4, ceraceous, elongated and laterally compressed.

Closely allied to *Ponera* and *Jacquinella*. According to Correll, the genus consists of two species, both variable.

1. *Isochilus major* Cham. & Schlecht. in Linnaea 6:60. 1831; Correll in Bot. Mus. Leafl. Harv. Univ. 10:9. 1941.

Isochilus chiriquensis Schltr. in Fedde Rep. Sp. Nov. Beih. 17:25. 1922.

Caespitose, erect or spreading, slender, epiphytic herbs. Stems simple, slender, leafy. Leaves 2–10 cm. long and 0.2–0.8 cm. broad, linear to linear-elliptic, obtuse, emarginate and unequally bilobed at the apex. Inflorescence secund, usually several- to many-flowered; flowers subtended by conspicuous chartaceous bracts. Dorsal sepal 7–11 mm. long and 3–4 mm. broad, elliptic-oblong, acute or obtuse. Lateral sepals 8–12 mm. long and 3–4.5 mm. broad, oblong-lanceolate, acute, keeled toward the base, and the keel decurrent onto the ovary. Petals 7–11 mm. long and 2–3 mm. broad, oblanceolate, acute or obtuse. Lip 8–12 mm. long and 1.5–3 mm. broad, elliptic-linear to



Fig. 144. *Isochilus major*

linear-oblong to oblanceolate, acute or obtuse, entire or obscurely lobed, geniculate and fleshy at the base.

Mexico, Guatemala, Honduras, Costa Rica, Panama and Jamaica.

CHIRIQUI: Rio Quebrada, alt. 1700 m., Killip 3532; "Province of Chiriquí," alt. 1200 m., Powell 98, 3380; Bajo Mona, alt. 1500–2000 m., Woodson, Allen & Seibert 1003; vicinity of Bajo Mona, alt. 1500 m., Woodson & Schery 518.

35. BOTHRIOCHLUS¹ Lemaire

BOTHRIOCHLUS Lemaire, Illustr. Hort. 3:Misc. p. 31. 1856; L. Wms. in Bot. Mus. Leafl. Harv. Univ. 8:145. 1940.

Epiphytic herbs with the stems reduced to ovoid or lageniform pseudobulbs. Pseudobulbs several-leaved at their apices, the petioles of the leaves simulating stems. Inflorescence lateral from the base of the pseudobulbs. Dorsal sepal free. Lateral sepals adnate to the column-foot and with it forming a mentum. Petals similar to the dorsal sepal but usually shorter. Lip simple or obscurely lobed, about as long as the petals, shortly and sharply declined at the base or even saccate, if saccate the sac sometimes didymous. Column erect, long and slender, wingless or nearly so; column-foot about as long as the column or longer; pollinia 8, ceraceous. Ovary wingless.

A single species is known from Panama.

1. *BOTHRIOCHLUS MACROSTACHYUS* (Lindl.) L. Wms. in Bot. Mus. Leafl. Harv. Univ. 8:148. 1940.

Coelia macrostachya Lindl. in Benth. Pl. Hartw. 92. 1842; Hook. in Bot. Mag. 79: t. 4712. 1853; Reichb. f. Beitr. Orch. Centr.-Am. 41. 1866.



Fig. 145
Bothriocchilus macrostachyus

¹To this genus belong all of the species previously referred to *Coelia*, except the type species.

Coelia macrostachya Lindl. var. *genuina* Reichb. f. loc. cit.
Coelia macrostachya Lindl. var. *integrialabia* Reichb. f. loc. cit.

Epiphytic herbs up to about 90 cm. tall. Pseudobulbs up to about 8 cm. long, ovoid to semi-globose, often somewhat compressed, surrounded with scarious sheaths at the base, bearing 3-6 leaves at the summit. Leaves 30-100 cm. long and 0.8-2.5 cm. broad, linear to elliptic-ligulate, acute or acuminate, plicate, sheathing at the base. Inflorescence a densely flowered, more or less elongated raceme, lateral, up to about 50 cm. long, the scape somewhat flexuous, covered with chartaceous bracts; the rachis provided with conspicuous linear to lanceolate, acute or acuminate bracts up to about 7 cm. long. Dorsal sepal 7.5-11 mm. long and 3-5 mm. broad, elliptic-ovate to ovate, acute, rugose dorsally. Lateral sepals 10-14 mm. long and 4-5 mm. broad, oblong-lanceolate, acute, free but forming a short obtuse mentum, rugose dorsally. Petals 7-11 mm. long and 3-5 mm. broad, elliptic-ovate to rhombic-obovate, acute. Lip 11-14 mm. long and 4-6 mm. broad, oblong-pandurate, angled or dentate-lobed above the middle, terminal part of the lip reflexed, lanceolate, base of lip forming a shallow didymous spur.

Mexico, Guatemala, Honduras and Panama.

CHIRIQUI: "Chiriquí Cordilleran," alt. 1800 m., Warscewicz.

The Panamanian record is a specimen cited by Reichenbach.

36. POLYSTACHYA Hook.

POLYSTACHYA Hook. Exot. Fl. 2: t. 103. 1825; Kränzlin in Fedde Rep. Sp. Nov. Beih. 39:1-136. 1926.

Epiphytic or rarely terrestrial, caespitose, pseudobulbose (Panamanian species) herbs. Inflorescence a raceme or panicle. Dorsal sepal free. Lateral sepals larger than the dorsal, forming a mentum at their bases. Petals much smaller than the sepals, usually linear. Lip non-resupinate, nearly entire or usually 3-lobed; disc of the lip usually with a conspicuous callus and often covered with fragile, articulated or farinaceous cells. Column short, with a prominent foot; pollinia 4, or 4 joined into 2.

Kräzlin, in his monograph, lists 188 species of *Polystachya*, mostly African.

- | | |
|--|------------------|
| a. Ovary and rachis of the inflorescence glabrous..... | 1. P. CEREA |
| aa. Ovary and rachis of the inflorescence pubescent..... | 2. P. MASAYENSIS |

1. POLYSTACHYA CEREA Lindl. in Bot. Reg. 26: Misc. p. 86. 1840.

Polystachya minor Fawc. & Rendle in Jour. Bot. 48:106. 1910.

Polystachya panamensis Schltr. in Fedde Rep. Sp. Nov. Beih. 17:49. 1922.

Polystachya costaricensis Schltr. loc. cit. 19:223. 1923.

Polystachya Powellii Ames, Sched. Orch. 7:31. 1924.

Caespitose, epiphytic herbs up to about 60 cm. tall, commonly 10-15 cm. tall. Stems very short, pseudobulbose; pseudobulbs ovoid to fusiform or cylindric, usually enclosed in bracts or the leaf-sheaths, bearing 2-5 leaves. Leaves 3-26

cm. long and 0.4–3 cm. broad, variable, linear to oblong-elliptic to oblanceolate, acute or obtuse, the sheaths enclosing the peduncle at the base. Inflorescence terminal, the peduncle covered with scarious sheaths, bearing a single terminal raceme or 1 or more short lateral racemes from the nodes of the peduncle. Dorsal sepal 3–3.5 mm. long and 1.6–2 mm. broad, lanceolate, ovate to oblong-ovate, acute. Lateral sepals 3–4.5 mm. long and 1.5–3 mm. broad, lanceolate-ovate to broadly ovate, acute or acuminate. Petals 2–2.5 mm. long and 0.5–1 mm. broad, obtuse or acute, slightly arcuate. Lip 2.5–3.5 mm. long and 2–3 mm. broad, oblong or oblong-ovate, 3-lobed; lateral lobes small, usually rounded, erect; mid-lobe large, truncate, apiculate or usually retuse; disc provided with an umbonate or mammillate callus at the base and with the terminal part covered with evanescent, farinaceous pubescence. Ovary glabrous.

Mexico, Central America, the West Indies, tropical South America.

CANAL ZONE: hills east of Panamá City, Powell 122, 3426; Barro Colorado Island, Shattuck 228. CHIRIQUI: opposite Lino, alt. 1200 m., Powell 343. COCLÉ: vicinity of El Valle, alt. 600–1000 m., Allen 781, 1171. PANAMÁ: Hacienda La Joya, alt. 50–300 m., Dodge et al 16909; Sabanas near Chepo, alt. 30 m., Hunter & Allen 28. PROVINCE NOT GIVEN: "hills," Powell 122, 3439; between Fort Clayton and Corozal, Standley 29100.

2. POLYSTACHYA MASAYENSIS Reichb. f. in Bonplandia 3:217. 1855.

Similar to *Polystachya cerea* Lindl. but usually somewhat smaller in size, vegetatively, and with the rachis of the inflorescence and the ovary downy-pubescent.

Mexico, Nicaragua, Costa Rica and Panama.

CANAL ZONE: Chagres, Fendler 334. COCLÉ: hills north of El Valle de Antón, alt. 1000 m., Allen 2319; Río Antón, alt. 500 m., Hunter & Allen 380. COLÓN: Cativa-Porto Bello trail, alt. sea-level, Powell 366.

Perhaps best treated as a mere variety of *P. cerea* Lindl.

37. GALEANDRA Lindl.

GALEANDRA Lindl. in Lindl. & Bauer, Illustr. Orch. Pl., Gen. t. 8. 1832.

Terrestrial or epiphytic herbs. Stems leafy, becoming thickened and pseudo-bulbose. Leaves distichous, plicate. Sepals free, equal, spreading. Petals similar to the sepals, sometimes broader. Lip entire or bilobed, adnate to the base of the column, with a conspicuous spur at the base; lateral lobes usually erect and enfolded over the column. Column erect, short; anther terminal, operculate, incumbent, imperfectly 2-celled; pollinia 4, ceraceous, often in pairs.

There are 3 species of *Galeandra* in Mexico and Central America, 2 of which occur in Panama—About 20 species in South America.

- | | |
|--|------------------------------|
| a. Plants epiphytic; lip large, with spur 4–5 cm. long....
aa. Plants terrestrial; lip about 2 cm. long....
1. GALEANDRA BAUERI Lindl. in Lindl. & Bauer, Illustr. Orch. Pl., Gen. t. 8. 1832; Batem. Orch. Mex. & Guat. t. 19. 1840; Lindl. in Bot. Reg. 26: t. 49. 1840; L. Wms. in Ann. Missouri Bot. Gard. 26:284. 1939.
<i>Galeandra Batemanii</i> Rolfe in Gard. Chron. III, 12:431. 1892. | 1. G. BAUERI
2. G. JUNcea |
|--|------------------------------|

Fig. 146. *Polystachya masayensis*

(333)

Fig. 147. *Galeandra Baueri*

(334)

Caespitose, epiphytic herbs up to about 50 cm. tall. Stems pseudobulbose, fusiform to ovoid, covered with the leaf-sheaths or becoming naked, bearing up to about 8 leaves. Leaves 8–26 cm. long and 0.8–2 cm. broad, linear-elliptic to elliptic, acute or acuminate, plicate. Inflorescence a terminal few-flowered raceme; flowers relatively large and pretty. Dorsal sepal 15–19 mm. long and 3–5 mm. broad, oblanceolate, acute. Lateral sepals 16–20 mm. long and 4–6 mm. broad, lanceolate or elliptic-lanceolate, acute, slightly arcuate. Petals 16–20 mm. long and 4–6 mm. broad, elliptic to elliptic-oblanceolate, acute. Lip, including the spur, 40–50 mm. long and 30–40 mm. broad, infundibuliform, spur just about equaling the lamina in length; lamina suborbicular-rhombic, emarginate.

Mexico, British Honduras, Guatemala, Honduras, Panama and French Guiana. A variety in Peru.

BOCAS DEL TORO: in swamp near Almirante, Nash 1962; Shepherd Island, vicinity of Chiriquí Lagoon, Wedel 2712.

2. *GALEANDRA JUNCEA* Lindl. Sert. Orch. sub. t. 37. 1840; Cogn. in Mart. Fl. Bras. 3⁴:306. 1895.

Strict terrestrial herbs up to about 50 cm. tall. Stems pseudobulbose, the pseudobulbs 1.5–2 cm. long, borne on the surface or just under the surface of the ground, simple, invested by the leaf-sheaths. Leaves up to about 20 cm. long and 0.5 cm. broad, ensiform, conduplicate. Inflorescence a simple (or branched?) few-flowered raceme. Sepals about 13 mm. long and 3.5–4 mm. broad, lanceolate, acute. Petals about 12 mm. long and 3.5 mm. broad, oblanceolate, acute. Lip 17–20 mm. long and about 16 mm. broad, obscurely trilobate, spurred; lamina when expanded broadly ovate in outline, with 2 small lamellate, pubescent calluses near the middle, and toward the apex a dense patch of pilose pubescence arranged in three lines; spur short, about 5 mm. long, directed outward and backward.

Panama, Venezuela, the Guianas and Brazil.

PANAMÁ: Isla Taboga, alt. 0–350 m., Allen 1268; Taboga Island, Cheeseman 483.

The description is drawn from the Panamanian material cited.

38. EPIDANTHUS L. Wms.

EPIDANTHUS L. Wms. in Bot. Mus. Leafl. Harv. Univ. 8:148. 1940.

Small, simple or branched, epiphytic herbs with slender, leafy, repent or caespitose stems lacking pseudobulbs. Leaves distichous, jointed at the base, plane or terete, linear or subfiliform; leaf-sheaths persistent on the stem. Inflorescence a terminal, distichous, fractiflex raceme. Sepals similar, free, reflexed or spreading. Petals narrower than the sepals, with a callus at the base. Lip simple or 3-lobed, adnate to the base of the column. Column short, terete, adnate to the lip or callus of the lip for its entire length; anther terminal, incumbent; pollinia 2, ceraceous.

A small Mexican and Central American genus of three species, only one of

which is known from Panama. It has been confused with *Epidendrum*, with which it has little affinity.

1. **EPIDANTHUS PARANTHICUS** (Reichb. f.) L. Wms. in Bot. Mus. Leafl. Harv. Univ. 8:150. 1940.

Epidendrum paranthicum Reichb. f. in Bot. Zeit. 10:732. 1852.

Epidendrum Sancti Ramoni Kränzl. in Vierteljahrsschr. Naturforsch. Zürich 74:137. 1929.

Small, caespitose, epiphytic herbs up to 30 cm. tall. Stems slender, slightly fractiflex. Leaves 0.8–2.5 cm. long and 0.05–0.2 cm. broad, linear, semi-terete, obtuse, deciduous. Inflorescence a terminal, fractiflex, few- to several-flowered raceme; flowers small, white or yellow. Sepals similar, 2–3 mm. long and 1–1.5 mm. broad, lanceolate to ovate-lanceolate, acute, the laterals often slightly cucullate. Petals 2–2.5 cm. long and about 0.5 mm. broad, linear-lanceolate, acute. Lip 2.2–3 mm. long and 2–2.5 mm. broad, unguiculate; the claw adnate to the column; lamina cordate-orbicular to reniform, long-apiculate.

Mexico, Guatemala, Honduras, Costa Rica and Panama.

CHIRIQUÍ: Bajo Chorro, Boquete District, alt. 1800 m., Davidson 121.

(To be continued in Part III, Fascicle 4)

GENERAL INDEX TO VOLUME XXXIII

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